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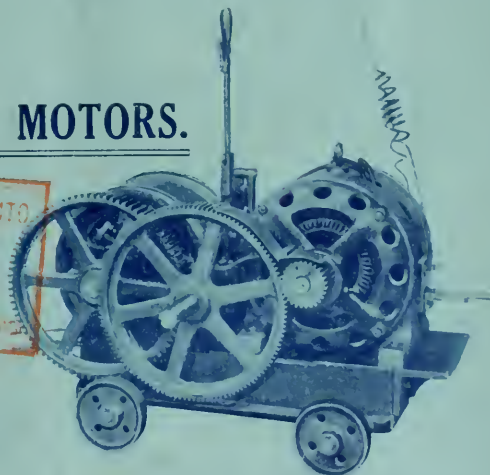
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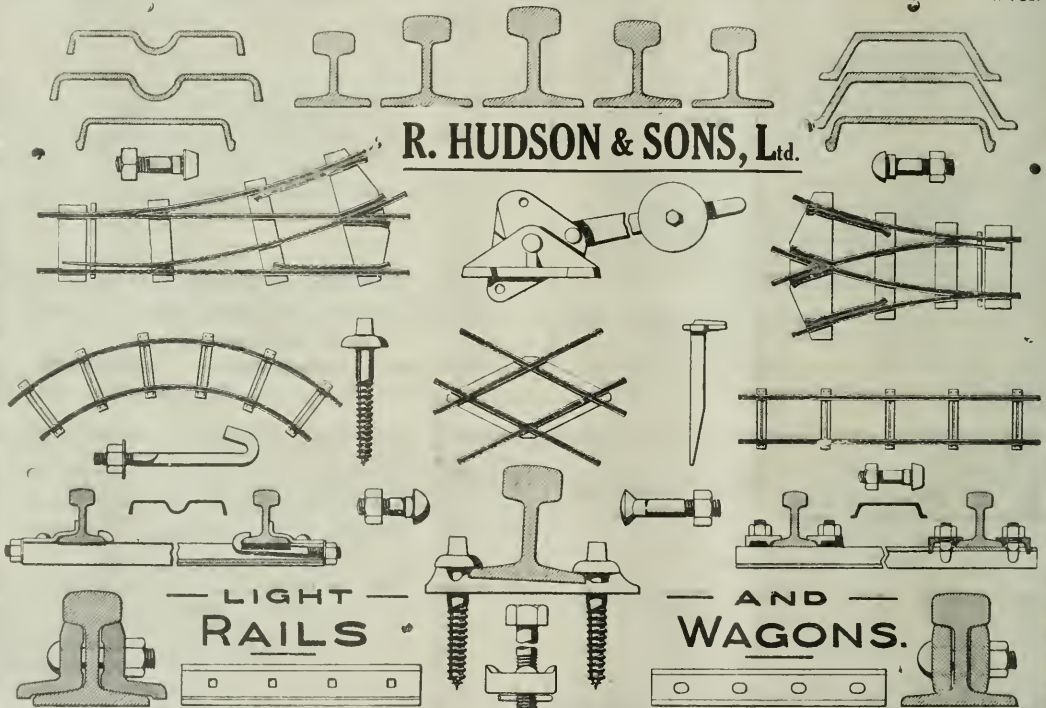
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## Notes and News

The returns of the Modder Deep for June are printed in another part of this issue. Besides the excellent feature of the low level at which working costs are maintained. Compared with its neighbours, the Modder Deep makes an excellent showing in this respect. Although working costs are made to include such items as miners' pitiless compensation and gold realisation charges, it is not the practice of all other companies to so treat the latter item, the total stands at the low figure of 15s. 11d. per ton, as compared with 17s. 10½d. per ton at the Modder Bond and 17s. 252d. per ton at the Van Ryn Deep. For a 3,000 foot deep level, this is, of course, a highly meritorious performance, particularly in view of the war conditions—the passing of which should facilitate further economies—and not only evidences the most careful management, but augurs well for the whole future of the district.

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There is on record a method of locating a borehole for petroleum, which was usually adopted by a

**Oil Finding.** well-known and very successful explorer and driller in the United States, who

frankly stated that he used to put on an old and cherished hat and gallop about the country till the hat fell off. On the spot where it fell he drilled his well. This is apparently not the only procedure that may be adopted for tapping fortune in an unknown area. At a meeting of the Sakalava Madagascar Proprietary Oil Fields, Limited, which was held on Saturday afternoon last, Mr. G. D. Alexander, who represented a very large and important body of shareholders in Natal, said that the method adopted by the company in Madagascar was equivalent to tossing a penny into the air and boring a hole upon the spot where it fell. It is much simpler than the first mentioned way; but since the area included in the operation is naturally limited the law of probabilities may be quoted to show that tossing is vastly less likely to prove successful. However that may be, it is hardly necessary to point out that there is no excuse whatever for taking sporting chances of this kind, and if Mr. Alexander's statements are based on solid grounds, it is obviously time that the board should take some pains to acquire that knowledge which is essential to all who set out to prospect for petroleum upon sound technical lines. A complete acquaintance with the art of running a drilling rig is not the first, nor is it the most essential part of this knowledge. It may easily be shown that a wide experience of drilling operations may be accompanied by inability to understand the full meaning of geological evidence. We do not wish to imply, of course, that this condition of things prevails in connection with the work of oil syndicates, who are working, or have been working in Madagascar. It is merely suggested in view of the remarkable rarity of geological information that marks the many statements of progress that have been made by responsible persons from time to time, with regard to the operations that have been carried on in the field during several years past. Geological knowledge is precisely that condition that makes it unnecessary to handle an oil proposition in the same sort of spirit that one deals with a race-card.

\* \* \* \*

After looking over the various reports that have been made by Monsieur Levat and others upon the possibilities of Madagascar as a producing oil field, it would be futile to deny that as far as superficial inspection can show, there are all the evidences of a prolific occurrence of petroleum in the Triassic strata that cover so large a portion of the western half of the island. This being the case the next thing necessary was to map out the likely formations in some detail, so that the variations in structure upon which so much depends might be studied as exhaustively as possible. Not only

ought these structural arrangements upon a large scale to have been investigated, but less obvious stratigraphical characteristics should have been noted and mapped with the utmost care. As far as the first are concerned, it appears that a survey on broad lines was carried out, for several anticlinals have been located and mapped, and, it is in proximity to these anticlinals that boring work has been done. The broad policy of putting down a borehole in any particular spot, because there is a pronounced anticlinal however, and possibly a strong seepage of oil is a real advance on Mr. Alexander's tossing method, of course; but it is still very far from being what may be called a thoroughly scientific one. Thickness and character of individual beds, variations in dip and lateral changes of texture are a few among many points of evidence that have to be assiduously put together, to be confirmed as far as may be by information derived from a borehole. All this detailed evidence may have been collected and put to use; but the cabled information from the field throws so little light upon the matter that one may reasonably doubt whether it is being used to any advantage. Cables are expensive, no doubt, but with a properly organised board and field control, the cables from the borehole should be so worded as to be capable of conveying information that may be used as a guide in the office. According to a correspondent in a local paper, the cost of boring at the Sakalava ground has averaged several pounds per foot. If this boring is giving useful information, as it should be, the expenditure may be overlooked to some extent; if the process is a sort of "blind bookey"—to use a favourite expression of one of our leading East Rand magnates—it can only be said that things are not what they ought to be. It is doubtless inconvenient, if not impossible, to maintain a consulting engineer in the field; but it should not be impossible to have capable and intelligent control from headquarters.

\* \* \*

1. the evidence before the Select Committee on the Far East Rand, the price of Government Areas shares was discussed. Mr. Kotze, the Government Mining Engineer, said the shares were

#### State Mines' Sharemarket Quotation.

created about seven years ago. If one took the accrued interest on 20s. they were standing about par now. Interest for the seven years added a value of 34s. (the then price) was about the equivalent of 20s. at that time. "The Government Areas are in a most favourable position. We shall never have such a block again, in my opinion, a block that will present the same advantages and possibilities of a favourable return. The mine looks hopeful to-day, but the market appraises the value as being only par." He added: "I think it a very excellent proposition." Mr. Imroth, one of the directors of the company, in the course of his evidence, gave the following answers to questions on the subject: Question: Is this mine a profit-making concern?—Yes. Is it going to pay a dividend?—I hope so. What is the market value of the shares?—Only 35s. Mr. Merriman: Issued at £1?—Yes. Nearly 100 per cent. increase?—No. At 35s. they show a loss on cost price, for the simple reason that it is nearly seven years since we paid £1 for these shares. It is reasonable to expect a return of 10 per cent. on the money invested. Seven years at 10 per cent. means a doubling of the capital; therefore, £1 shares now cost £2, and we can buy them at a discount of 5s. But a good many mines on the Rand are quoted at under £1?—Yes, quite a number. That is where the gamble comes in. You have made yours a success?—One cannot call it a success when you can buy shares at 35s. which cost £2. Later on, Mr. Madeley asked: With the super-tax the Government Areas would still be a payable proposition? Mr. Imroth replied he hoped so. But you think so?—Yes, I also think so. In fact you are pretty sure?—I am very hopeful. . . . Is 35s. purely a speculative price?—Yes, at present. . . . Does that not mean that to the purchaser the probable dividend is worth 35s.?—I hope the man who buys them to-day at 35s. will get a dividend on that amount. Frequently, but not always, the market price indicated the value of the dividends. There has been a large purchase of shares of late at 31s." Mr. H. C. Hull was asked whether he agreed that people who put up

the money at par had lost on the transaction. He said that seven years' interest must be added. "If I had put a thousand pounds into these shares seven years ago I would say they cost me 20s. per share plus so many years' interest which I ought to have had on my money."

\* \* \*

Although the incidence of the Mining Taxation Act has been the source of comparatively little difficulty during the past year, an important alteration in its clauses is referred to in the last annual report of the Chamber of Mines. It may be remembered that as far back as 1913 the Chamber decided to test in the Courts an important principle arising out of the purchase by the Knights Deep, Ltd., of the assets of the Simmer and Jack East, Limited, when it was claimed by the purchasers that "the total assets of the absorbed company, which had been recognised by the Government, during the existence of the said company, as being entitled to be amortized, should be equally entitled to be similarly amortized *in toto* after they had been transferred to the purchasers. Obviously the effects of such an amortization, if allowed, would be greatly to the advantage of the purchasers if, for example, the assets had been taken over for what is commonly described as "an old song." A test case was accordingly brought before the Court, and, in accordance with the views of the counsel engaged, it was found by the Court that the Mining Taxation Act, as it stood, had nothing whatever to say against such a procedure as was contemplated by the Knights Deep in connection with the assets referred to. The Chamber of Mines was mainly concerned in the case, as a matter of fact, and its contention was upheld both in the Lower Courts and on appeal. Without wasting any time in the matter, the Government set about altering the law, with the object of bringing it more into accordance with the opinions of the Treasury with regard to sound finance, and the result of this effort is shown in the following extract from the last report of the Chamber of Mines for 1915, under the head of "New Amendments." "A provision, to the effect that the effective value only of the assets of an absorbed company amortizable under the Act by that company, are entitled to be amortized by the absorbing company. This provision nullifies to a great extent the favourable judgment obtained by the Chamber in the case of the Union Government v. Knights Deep, Ltd."

\* \* \*

The Chamber of Mines' returns for the month of June will doubtless be studied with some interest, inasmuch as they complete the statistics of a half year, which has, so far, shown a falling off when compared, in the matter of results, with the previous twelve months. As regards details, such as sorting and recovery per ton milled, there have been slight improvements, so that with a smaller average quantity milled per month there has been an appreciable advance upon the gold won per ton. This, however, appears to have been more than balanced by the higher working costs, so that the final result in the way of working profits will probably be found to be well under the total for the corresponding period of 1915, unless special efforts have been made during the month of June to pull things up a little.

\* \* \*

At the monthly meeting of the Geological Society of South Africa, held on Monday evening, July 3rd, a paper, entitled "An Interesting Outlier of Karroo Rocks to the North of the Olifantsfontein Station, on the Gernistons-Pretoria Railway," was read by Dr. P. A. Wagner, who presided over the meeting. In this paper, the author described at some length an important outlier of Karroo rocks on the farm Olifantsfontein, No. 559, that appears to have completely escaped the notice of geologists. Apart from its scientific interest, the outlier is of great economic importance in containing what are perhaps the most valuable clay deposits hitherto discovered in South Africa. The clays were already worked before the Anglo-Boer War, and since 1903 have been exploited by the Consolidated Rand Brick and Pottery Company. The best sections across the Karroo rocks are to be seen in the main clay-pit, where there are



exposed in descending order: (a) a series of clays, grits and sandstones, containing occasional thin seams of impure coal, which are believed to be of Eocene age; and (b) fluvio-glacial deposits and peculiar cherts belonging to the Dwyka series. The clays are characterised by great refractoriness and are equal in fire-stability to the best English and American fire-clays. Clays well adapted to the manufacture of white earthenware crockery also occur. The author adduced evidence to show that the Olifantsfontein fire-clays represent the finest muds and silts from an area of granitic rocks, from which, during the process of transportation and deposition, the fusible impurities were removed in solution. They were probably laid down in a lake.

\* \* \* \*

From an advertisement in another column it will be noted that the applications for shares in New Compound Diamonds, Limited, which company is being formed to purchase the assets of Compound Diamond Mining Syndicate, Limited, close on Monday next, the 10th day of July. Compound Diamond Mining Syndicate, Limited, is prospecting in the Theunissen district, and have so far opened up two diamondiferous areas. A parcel of 250 carats of diamonds recovered by this Syndicate during prospecting operations, was on show during last week. Arrangements have been made for the diamond expert, Mr. C. F. Goulding, to take charge of the property as soon as the new company is formed. Full details of the new company can be obtained from the acting Secretary, 82/84, Exploration Building, Johannesburg.

\* \* \* \*

Notice is given that an extraordinary general meeting of the East Rand Central Mines will be held on August 8, for the purpose of considering, and if deemed fit of ratifying, with or without modifications, certain provisional Agreement entered into between the Board of Directors of the Company and the Consolidated Mines Selection Company, Ltd., whereby the East Rand Central sells and cedes and the Consolidated Mines Selection Co., Ltd., purchases and assumes all the property, rights and assets whatsoever and all the liabilities of the former, the purchase price being the sum of six thousand nine hundred cash and fifteen thousand one hundred and thirty-four fully paid-up £1 shares in the Brakpan Mines, Limited, such shares to be ex all dividends declared or to be declared in respect thereof up to the 1st July, 1916 inclusive. A copy of the Agreement lies at the Head Office of the Company for inspection by the shareholders.

\* \* \* \*

In the House of Commons in mail week, Mr. Montague Barlow asked the President of the Board of Trade whether he was aware of the dissatisfaction that existed in the business world with regard to the action of the Treasury Committee on New Issues; and whether he would be prepared to receive a deputation on the subject or to allow an opportunity for a discussion of the action of the Committee by the House. Mr. McKenna, who explained that he had been asked to reply, said: "So far as I am aware, such dissatisfaction as exists is mainly confined to rejected applicants. It is open to the hon. member to raise discussion in this House on the matter on any occasion when the subject is relevant." Mr. Montague Barlow also asked whether the action of the Treasury Committee on New Issues is confined to cases where a Stock Exchange quotation is desired or not; whether in fact the Treasury Committee have forbidden such forms of issue as an exchange of shares on an amalgamation or reconstruction and debentures to replace bank loans contracted before the war, and that whether the company concerned was a public or private one and whether a Stock Exchange quotation was desired or not. Mr. McKenna: The answer to the first part of the question is in the negative and in the second in the affirmative.

## TOPICS OF THE WEEK.

### THE DIAMOND POSITION AND OUTLOOK

THE South African diamond industry is looking up. It is officially announced that the Premier Diamond Mining Company, Limited, will commence mining and washing at the beginning of August. It will not, however, be a restart on a full scale. As a fact, the operations will be limited to about 25 per cent. of the normal working. The company will only be working one gear or one shift instead of two gears for two shifts, which represents the activity under ordinary conditions. The number of white men who will be employed will probably be somewhere about two hundred. At present the working staff consists of about 130, so that the increase will be roughly 50 per cent. The foregoing fact is explained and illumined in the informative speech made by Sir David Harris, from the chair, at the annual meeting of the New Jagersfontein Company, fully reported in this issue. From the speech of Sir David Harris, it appears that during the three years preceding the outbreak of hostilities, the company sold diamonds representing an aggregate value of £3,538,076, or an average of £1,179,359 per annum. During the past twenty-three months their total sales have amounted to no more than £179,900, or roughly speaking an average per annum of £89,950. Not a single carat was sold after the war broke out until the end of May, 1915, and thereafter a whole year elapsed before a second parcel was disposed of. The directors could, of course, have thrown their diamonds on the market for what they would fetch, but what would have been the result? The answer is found in the object-lesson afforded by the experience of the river diggers, who, not being in a position enabling them to live without income, were compelled to go on realising their finds, and in order to do so had to be content to accept just half the prices ruling in 1913. The alluvial output in normal times constitutes only about 10 per cent. of the total production of the Union. But even half the normal production from this source, sold in the absence of any real demand, sufficed to bring down values by 50 per cent. Suppose the leading producers had elected to take the same course as the alluvial diggers were constrained to adopt, or had not been financially strong enough to devise an alternative. Sir David Harris's speech shows what would have happened had not De Beers, Jagersfontein, and the Premier, in conjunction with the Diamond Syndicate, combined to shut down all other dealings save those in the small percentage of river stones. Prices would have crumbled away entirely, confidence would have given place to panic, and the whole foundation of the industry on which the prosperity of South Africa so largely depends would have been irretrievably destroyed. Thanks to the financial facilities afforded by the National Bank, and the large advances made by Messrs. Barnato Bros., the Jagersfontein directors were enabled to tide over their difficulties, and to provide much-needed assistance during the suspension of work for their employees, including those on active service, while holding their diamonds in reserve against the subsequent revival in the American demand. The striking and significant result has been that prices for the better qualities of stones are to-day as high as in 1913, the period of high-water mark, despite the fact that the demand is still only about one-half of what it was three years back. It is intended to set up a new direct treatment plant, which, with power station, will cost approximately £300,000. It is anticipated that this will decrease working costs to an extent which will more than compensate for the additional expenditure entailed by mining at the depth now reached. The ground now on the floors is estimated to yield diamonds to the value of £1,100,000. Deducting cost of washing, and of the new plant, there is a prospect of half a million surplus from the treatment of this ground, out of which the shareholders, who have had no dividend for over two years, can look forward to getting some return. The period under review must have been one of grave anxiety for all concerned. Happily there is good reason to believe that the worst is past; and shareholders may now expect to reap the fruit of the wise policy of the directors in the face of the unparalleled difficulties created by the war.

## THE SOUTH AFRICAN RAILWAYS IN WAR TIME.

THE report of the General Manager of Railways and Harbours for the year 1915, issued this week, is a perfect mine of information. It affords conclusive proof that the business world of South Africa has suffered but little owing to the war. "Notwithstanding the decline in military traffic, railway earnings were well maintained in the closing months of the year," says the report, "and, in spite of the disastrous drought in certain districts of the Cape Province, the Administration entered upon the present year with a much more hopeful outlook than that which characterised the earlier months of the period under review. It is, however, difficult to anticipate the probable fluctuations of traffic while the war continues." Reference is made to the fact that the disorganisation of Oversea commerce, with the consequent uncertainty in the delivery of imported supplies, has afforded unique opportunities for the use of South African manufactures, and has demonstrated the necessity for organising local sources of supply. Regarding the restriction of capital expenditure, it is pointed out that no new works capable of postponement were commenced during the year, "but many schemes temporarily cancelled are becoming urgently necessary, and must be undertaken shortly in order to provide for increasing requirements. Other works, though reproductive or having for their object the attainment of greater economy or efficiency are in abeyance. Indications are not wanting that the indefinite postponement of many such works may be imperative, as it seems certain that the financial stringency of the past year will be intensified, and that the curtailment of capital expenditure, will continue to be necessary for some time to come. The financial position in Europe at the conclusion of the war is likely to be such that South Africa may have to limit its loan requirements." The report throws further sidelights, supplementing those of the previous year's review, upon the very extensive military services of the department, including references to the taking over of the working and maintenance of the railways and harbours of the South-West Protectorate, and of the strategic railways constructed on behalf of the Defence Department, a general survey of the position in connection with the railways in the conquered territory being given. Sir William Hoy dilates on the fact that South African exporters and importers have not, as a direct outcome of the war, suffered to the same extent as traders in many other parts of the world, nor have war rates been experienced such as those which have obtained elsewhere. "An effective system of control, which would ensure greater stability of sea freights is, nevertheless, to be desired. . . . The control of shipping is a problem almost international in character, and one involving many complications and much difficulty. Recent attempts by certain countries to regulate maritime transport have not been entirely successful, inasmuch as relief in one direction has in some cases only served to produce unexpectedly harmful results in others." That Trade and transport between Great Britain and the Dominions call for reorganisation in many respects, is also demonstrated. In regard to this, Sir William Hoy writes: "We should combine economy in production with better organised and cheaper facilities for conveyance by land and sea. The aggregate force of many individual interests, each working towards its own ends, and the absence of collective action in commerce have greatly retarded British trade expansion. The enormous trade capacity of the Empire is being crippled by too many agencies which, by acting independently, have allowed competitors whose business methods are more attractive than our own, not only to capture trade in foreign markets but to gain a footing in the markets of Great Britain and the Dominions. The necessity for a broader outlook in our trade relationship, and for a closer and more scientific study of the economic production and distribution of our manufactures should not be overlooked." Moreover, this appeal is not unsupported in other quarters. As we have shown in previous issues, it is one of the first and most obvious lessons of the war.

## THE COAL MINES AND THE RAILWAYS.

THE coal mining industry bulks largely in Sir William Hoy's report for 1915 on the South African Railways. The war, it is pointed out, has presented an opportunity for South African coal to gain an ascendancy on the African coast, both east and west, and on the eastern trade routes. If new outlets for our coal can be secured permanently, and certain of the temporarily diverted shipping induced to adhere to the Cape route, there should be very considerable development. The existence in South Africa of large quantities of coal of proved quality for steamship purposes should, as the coal becomes better known, be an influencing factor in deciding the route to be followed in the eastern trade, and should encourage shipping to touch at Union ports and engage in South African trade. Such a diversion of shipping would be of great importance to the Union, and would open up new markets for South African products. It is anticipated that many of the companies which have had to resort to South African coal under war conditions will continue its use. Meanwhile cheap rates, and comparative immunity from war risk, are strong potential incentives in attracting shipping under present conditions. Interesting points to be gleaned from the report are in reference to the trial shipments of coal during last year from South African ports. A consignment of 11,000 tons to be tested on the Sudan railways was the largest single shipment ever made from South Africa. Several cargoes were despatched to the Argentine—where the shortage was such that two large railway companies had to use wood fuel—and others to East and West African ports. One went as far as Guayaquil in Ecuador, and in various other directions new trade was opened up. Sir William Hoy's references are largely in the nature of replies to Press and other criticisms, with a view to demonstrating that the Railway Administration appreciates the importance of the coal industry, and its wide possibilities of development. In various respects the conditions obtaining during the period under review have been adversely criticised from the standpoint of the collieries, and unfavourable comparisons drawn with pre-Union conditions. Sir William Hoy realises the importance of these grievances, as he deals with the subject at considerable length, urging the need of co-operation with the Railway Department in regard to coal grading and the release of trucks at Durban and Delagoa Bay, given which, he contends, it would have been possible to meet all requirements in regard to trucks except during periods of acute pressure from military traffic. The report complains of "wrong motives" having been imputed and "pointed charges of malignancy and misleading comparisons" having been freely made, "both by members of the public and certain sections of the Press"; also of "criticism on matters in regard to which, in the existing state of affairs, the Administration is not in a position to make a statement at present," and of the ignoring of "difficulties obviously beyond control." Sir William Hoy deals at considerable length with the difficulties of the Administration, and while admitting that "owing to force of circumstances it may not be blameless, in some respects," advances reasons to show that it cannot be held accountable for the large decline in the coal output during the last two years. Sir William acknowledges that the majority of the colliery companies, and also many who have taken up the cry of truck shortage on their behalf, "though they have been frank, cannot be said to have been unfair in their criticism. . . . Many of them have freely admitted abnormal conditions, though they cannot be aware of the series of adverse circumstances with which the Administration has had to contend. When military traffic was at its height, the companies generally showed appreciation of the circumstances, and they have throughout abstained from action likely to embarrass, the Administration or add to its difficulties. There has not been complete agreement on many points; but, nevertheless, there has been cordial co-operation." Sir William intimates that he would welcome an independent enquiry into truck shortage, "as I am confident it would show that the railways have taken all reasonable precautions to provide for normal expansion, and that there are many delinquencies in other directions which contribute towards transport difficulties."



## GEOLOGICAL CRITICISM RUN MAD!

### Extraordinary Ebullition by London Journal—Fatuous Comments on the Proceedings of the Geological Society of South Africa and its President.

Our attention has been called by the Council of the Geological Society of South Africa, to the criticism levelled at the proceedings of the Society in a recent issue of *South Africa*. Students of Rand geology hardly need to be told how fatuous are the remarks of our London contemporary; but there is some danger that the general public may take its precious opinions seriously. Everyone has doubtless heard of the amusing antics of Mark Twain, as described by himself, when he was entrusted, by some mischance, with the editing of an agricultural newspaper. Nothing quite so funny in that particular line has appeared in print for years. The references in *South Africa* to Dr. P. A. Wagner, the able President of the Geological Society of South Africa, and to various geological problems relating to the Witwatersrand could scarcely have been excelled by the agricultural locum tenens at his very best. The difference is that Mark Twain knew that he was talking nonsense. Those who were present when Dr. Wagner made the remarks which have drawn the fire of our contemporary, are perfectly well aware that he spoke of the existence of diamonds in the banket as being a matter of merely academic interest. The theory that the conglomerates of the Main Reef zone had their source in ancient placers, or river beds, which *South Africa* appears to be unable to comprehend, is one that only the very ignorant can afford to laugh at, while the statement of the egregious writer that Boksburg coal and banket are associated in the same beds in the Far East Rand, is so thoroughly at variance with actual facts that one feels compelled to conclude that someone has been having "high jinks" in the editorial chair. The best commentary on the matter, however, is to print the official report of the proceedings on the occasion in question, and then to leave the reader to judge of the value of the views of our contemporary.

#### GEOLOGICAL SOCIETY MEETING.

The following is an extract giving the official report of the proceedings at the monthly meeting of the Geological Society of South Africa, held in the Council Chamber, Chamber of Mines, Johannesburg, on Monday, 13th March, 1916, at 8.15 p.m., Dr. P. A. Wagner, President, in the chair. Mr. J. E. Thomas, President of the Chemical, Metallurgical and Mining Society of South Africa, who attended the meeting by invitation, exhibited specimens of diamonds from the Simmer Deep Mine, Germiston, and described the circumstances under which they were found. Referring to these stones, the chairman, Dr. Wagner, said that diamonds had now been found in the conglomerates of the Witwatersrand System in the Klerksdorp district, on the Central Rand, in the neighbourhood of Germiston, and on the East Rand; and when one took into consideration that for every stone recovered hundreds, one might safely say thousands, were either destroyed in the mortar boxes and tube mills or lost, and that only one group of conglomerates—the Main Reef zone—had been extensively exploited, it was impossible but to conclude that vast numbers of diamonds were locked up in the Upper Witwatersrand beds. The stones that had hitherto been found presented sufficient identity of feature—they were all characterised by a more or less pronounced green tinge—to warrant the assumption that they had been derived from the same source. Where that source was situated they did not know, but the investigations of Dr. Mellor on the Rand conglomerates suggested that it lay to the north-west, and that the diamonds had been carried to their present resting place by one or more great rivers. He hoped that Dr. Mellor, as a result of his further investigations, would be able to tell them something more about the river or rivers that, at a very remote period in the geological history of South Africa, had scattered gold and diamonds broadcast over what is now the southern portion of the Transvaal. Dr. E. T. Mellor also took part in the discussion on these specimens.

#### South Africa ON THE FOREGOING

The issue of *South Africa* of May 20 prints as a leading article the following:—

#### WITWATERSRAND DIAMONDS.

Whenever the Geological Society of South Africa indulges in a new President, occasion is generally taken to give another airing to every fossilised theory and argument that has been languishing in retirement for varying periods of seclusion. Sure enough Dr. Wagner has followed the several red herrings dragged across his presidential purview, and has seen fit to discover a new theory for the origin of the diamonds which have always been discoverable in the conglomerates of the Witwatersrand system. His enterprising mind has already sought to decide the question about the diamonds of the Luderitzbucht hinterland, and it won't be long till we get his theory about the banket formations of the Rand. Well "wait and see." Meanwhile he has had the audacity to speculate an opinion that thousands of diamonds have been destroyed under the stamps in the mills along the Reef, and that vast numbers of these gems must be locked up in the unexplored conglomerate beds of the Witwatersrand. He goes further when he suggests that because the diamonds are all green they must have been deposited by a great river which ran in prehistoric ages across the high veld from the north-west towards the south-east. That must have been a gorgeous river, for along the Rand there is the most wonderful gold reef in all the world, enclosing green diamonds, black diamonds, and black reef. Of course, the river cannot take responsibility for all these riches, but it would seem that Dr. Wagner would charge it with depositing the gold and the diamonds while he is busy arraigning the gold winners with the culpable neglect of smashing diamonds in order to win gold. Of course, he has remembered that the banket is metamorphic, but he has entirely failed to see any relation between the slow processes of metamorphic action and the elaboration of green crystals in the golden matrix. It will be a revelation to many geologists to find that Dr. Wagner (and with him Dr. Mellor) has discovered that the Rand conglomerates are of a river origin. The idea is decidedly a debatable one when the extent of the Reef is considered, in all its length, breadth and depth. There are a lot of controversial geological puzzles around Johannesburg, as, for instance, the fact that the gold in the Far Eastern Rand area is found in the same bed with coal. A peculiar sort of conubial relationship for such widely differentiated minerals, and beyond the fact that diamonds are distilled carbon, and coal is adulterated carbon, the chance of consanguinity of origin is remote. But this relationship, however accidental, does exist, and, as a diamond is merely metamorphosed carbon, can there be no possibility of the next President finding a theory which might connect Boksburg coal with the green diamond in the conglomerate? It is about his only chance for distinction if he can but propound a sufficiently interesting series of reasonings to establish an argumentative basis for a scientific discussion. Meanwhile it is just as well to reassure the ordinary shareholder in Rand gold mines that green diamonds found in Witwatersrand conglomerates are worth little more than this, to be a subject for discussion and a provocative for the dreamings of paleontological professors.

Prodigious! Do not the ineptitude, the false humour, the assumed air of authority, and the stupidity of it all leave one amazed that a presumably responsible journal should print such nonsense in its editorial columns?

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JOHANNESBURG.

## RESEARCH AND THE ORGANISATION OF INDUSTRY.

Address by Professor Wilkinson.

Before the South African Association for the Advancement of Science, the Presidential address in Section B was delivered by Professor J. A. Wilkinson. Professor Wilkinson said:—

The choice of a subject for a sectional address is normally fraught with some difficulty, but this year your Council specifically requested contributions from its members dealing with (1) the organisation of the Union for the fuller development of its industries and resources; and (2) the necessity for research work with a view to the establishment of new industries and the development of those already existing. On glancing at the list of papers to be submitted to this Section, it was evident that none of the authors had attempted to deal with either of these subjects, and hence I felt that the path of duty compelled their treatment in some degree. It will therefore be my endeavour in this address to attempt to deal from that point of view with the matters with which I am mostly concerned, namely, the necessity, the organisation, and the development of chemical industry and research, using these terms in their widest sense.

South Africa is a country which has hitherto existed, and still does at the present moment exist, on its rich stock of raw materials. Its exports, in addition to the raw products of agriculture, are chiefly metals, crude and unrefined, and diamonds uncut. Their extent and relation to other exports are easily read in Figures 1 and 2, derived from the official data published by the Union Government. It is there seen that the chief chemical industry is the preparation of raw gold bullion from the quartzitic ore of the Transvaal. This is carried out in three operations, the first being fine pulverisation by mechanical means; the second, amalgamation with mercury; and the third, solution of the unamalgamated gold still remaining by means of sodium cyanide solution, followed by reprecipitation with excess of zinc shavings, and final treatment of the metal, so as to get rid of as much of the base metal present as possible before pouring into commercial bars. The major portion of the plant necessary for these operations consists of iron and steel, and the raw materials for their manufacture exist in comparative abundance in the Transvaal. A thorough and scientifically complete investigation of these has not yet been undertaken, but in the interests of the country at large, and not merely of the metal industry, this should, I venture to state, be one of the first, since iron is the most important necessity for industrial progress of every kind. The normal value of the iron and steel imports into this country annually is almost one million pounds, and, with an expanding population, this must rapidly increase, as there is, practically speaking, no industry, operation, or even trade, for which it is not necessary in some form or another. One small manufactory is working at Vereeniging, but this is not engaged in the production of cast iron from the raw ore and its subsequent conversion into steel of known and definite composition; and, further, what is being done is not, as far as I am aware, under strict chemical control, by which means alone can proper and definite results be achieved. The function of the chemist in the control of matter and its energy content is imperfectly, if at all, understood, even in industries such as this, where one might at least expect that the methods which have been successful, and hence adopted in their entirety in other countries, would be followed here. This state of affairs is, however, too common an occurrence in this country, and even in England, the popular opinion being that the duties of the chemist and the pharmacist are identically the same. The second process mentioned involves the use of mercury, which must necessarily be imported at present. The case, however, is otherwise as far as sodium cyanide and zinc are concerned, the imports of which amount to half-a-million sterling, and both of which can be manufactured here. The former can be obtained indirectly from atmospheric nitrogen through cyanamide, which would find great use as an artificial manure, and thus stimulate agricultural progress. In point of fact, the Rand may be said to be primarily responsible for this great and growing industry, since it was the search for a new method of preparing cyanide that first discovered the reaction. Zinc blende is also found native, and the winning of the metal offers no great difficulty. The mining of gold ore or other mineral deposits would be, practically speaking, impossible without the use of explosives, and to meet this necessity three large explosive factories have been established in the country, all of which are entirely dependent for their raw materials on other countries. The value of these imports in 1913, the last completely normal pre-war period, was as follows: Sulphur, £78,386; nitrates, £235,984; glycerine, £563,014; or a total of £877,384, iron pyrites not being given. Of these, no large deposits of sulphur or pure pyrites are known to exist in South Africa, but nitric acid and its salts can now be prepared in any quantity from the nitrogen present in the atmosphere, and glycerine is a by-product in the manufacture of soap, factories for which have recently been erected here. The production of the oils for the latter purpose would necessitate the provision of artificial fertilisers, an industry of prime importance for the progress of every branch of agriculture. Happily the problem of the transference of atmospheric nitrogen to the requirements of the soil, first stated by Sir William Crookes in his classic address to the British Association at Bristol in 1896, has now been solved in various ways, two of which have been indicated above, and which would therefore serve, if established, a double function. Unfortunately, deposits of potassium salts or mineral phosphates of any large extent

and degree of purity have not hitherto been discovered here, but in this respect South Africa is in no worse case than most other countries, and hence this problem is by no means insoluble. The manufacture of superphosphate, however, could and should be undertaken, the value imported in 1913 being £95,273, and of raw phosphates only £1,705. It should also be mentioned in this connection that over 1½ million pounds of basic slag, a by-product of the steel industry, were imported in 1914, another valid argument for the creation of the latter. With regard to potassium salts, there are no deposits of easy chemical access outside the celebrated Stassfurt beds, but there are sources within this country which could be realised if the necessity arose. At the present moment strenuous research is being made in the United States of North America with regard to the treatment of similar sources of potash in order to meet their own requirements, and, should these experiments prove successful, the application of similar methods in this country may yet prove of great value. Returning again to the consideration of the exports of the country, we find that copper ore and matte, tin ore, lead ore and raw asbestos, along with coal and diamonds, form the remainder. It is indeed a sad reflection that we must needs export these raw materials, as such, without making even the slightest attempt to extract their valuable contents or work them up in any manner whatsoever, but rather in addition pay freightage on admixed dross. A pitiable confession of failure in very truth, since the paths are easy and rendered still more so by the value of the prospect! If the Chinaman and the Malay are capable enough to win the tin from its ore, why should we hesitate? Further, we require these metals in some degree even at present, since we imported in 1913 the following amounts: Copper: Bar, ingot and rod, £8,158; plate and sheet, £4,767. Tin: Bar, block and ingot, £12,797. Total, £25,792. If these figures constitute a subject for serious study, the case is even more surprising when the imports necessary for the prosecution of the country's work are considered. The following is a list of the articles (and their value for the year 1913) produced by chemical industry which could be manufactured in this country. In this are included only such substances as can be prepared from materials which are available here, either in their raw state or those which can be grown on the soil:—

1. *Coal Products*.—Ammonium sulphate, £4,707; ammonia for ice-making, £4,811; ammonium carbonate, £928; carbonic acid gas, £1,827; calcium carbide, £46,715; creosote, £801; pitch, £913; tar, £26,765; disinfectants and germicides, £43,272; printer's ink (?), £10,802; total, £141,541.
2. *Silica and Clay Products*.—Building bricks, £1,086; fire bricks, £4,181; fire clay, £702; pipes and piping, £8,678; earthenware, £153,266; glass, £269,880; beads (of glass ?), £20,319; total, £458,112.
3. *Limes, Cements, etc.*—Lime, £1,818; bleaching powder, £2,316; cement, £125,616; magnes sulphate, £2,104.
4. *Starch and Sugar Products*.—Glucose, £12,997; molasses and treacle, £799; golden syrup, £135,440; vinegar, £10,188; alcohol, ?; confectionery (?), £261,788.
5. *Oils, Fats and Waxes*.—Castor oil, £19,778; colza and rape oil, £2,375; cotton seed oil, £34,819; linseed oil, £43,405; lard, £48,317; beeswax, £543; margarine, £26,614; soap, £92,287; candles, £9,221.
6. *Cellulose*.—Paper (cheaper grades), £340,541.
7. *Condensed Milk*.—£464,886.
8. *Paints*.—Ochre, £6,670; water paints and distemper, £14,090.
9. *Various*.—Medicinal preparations (spirituous), £22,331; medicinal preparations (non-spirituous), £101,609; ale, beer and stout, £40,742; aerated waters, £14,066; matches, £3,786; tartaric acid, £5,639; cream of tartar, £8,059; baking powder, £46,761.

It will be obvious to any chemist that this list is by no means as exhaustive as could be made, and that many common substances have been omitted. As an example of the latter, perhaps, the absence of all sodium compounds, more particularly cyanide, every molecule of which is imported—in 1913 to the extent of £395,639—may form a subject for criticism. But it is a well-known fact that within the borders of the Union no large economic supply of the raw material, common salt, of sufficient purity has hitherto been discovered. In British East Africa, however, there is a large deposit, Lake Magadi, of pure soda, which constitutes, as far as is at present known, one of the most remarkable natural phenomena in existence. On the other hand, it may be objected that many of the materials quoted are at present being manufactured here, in which case South Africa is unable to meet even her own requirements. In addition to this, however, the chemist does not hesitate to assert and maintain, as he can prove that the articles manufactured in this country do not, as a general rule, attain the same level of perfection as those to which importation has accustomed him, the chief, and, generally speaking, the sole reason being an utter lack of chemical control. "Bricks are made from clay, and clay is clay," is the article of faith upon which a manufacture is founded, the geographical survey of the bed furnishes a basis for a usual estimation of profits, the mixing, moulding, mining and transport machines are provided by the engineer salesman. Untrained and uneducated labourers are drilled into daily routine operations, and the work begins, with the only result possible, the usual muddle through somehow, or trust to luck kind. A few analyses of the virgin clay may have been done at first, but physical and chemical control of every phase of the operation, from the clay pit to the sales product, is either unknown and unvalued or ignored and despised.

(To be continued.)



## SOME IMPORTANT VIEWS ON STATE MINING.

### More Points from the Evidence Before the Select Committee.

The evidence given by the Transvaal Chamber of Mines before the Select Committee, as summarised by Mr. Wallers at the Chamber of Mines meeting, was quoted in our last issue. Other interesting views were expressed regarding the State undertaking the working of gold mining areas on the Far East Rand, during the investigation by the Select Committee. Mr. R. N. Kotze, the Government Mining Engineer, did not advise such a policy. Of course, the State could do it, but he doubted whether the advantages would outweigh the disadvantages. The great disadvantage was that it was a very risky proposition.

#### VIEWS OF THE CHAMBER OF MINES.

"The advantage was that the State gets the full benefit, and all the profit goes to the State, if it is a highly-payable mine; and that one is hardly dependent upon the money market in choosing the time for opening. The State can at any time commence work. The mine gives employment to a large number of people under State control, which may be presumed to be somewhat more generous than private control. He did not think that there were any other considerable advantages. From the technical point of view there was the objection that the State would be risking money, and if it were lost the loss would be heavy, for large sums are involved. It was doubtful whether the State would be able to work the ground as cheaply as private people."

#### GOVERNMENT WORKING MORE EXPENSIVE.

"If the Government worked some mines and private companies other mines, there would be complications. The tendency would be to try all sorts of experiments on a Government mine. Strong pressure would be put on to try all sorts of experiments, as to the organisation and payment of labour for one thing. In such matters as new inventions, and for the benefit of health and life, this, to a certain extent, would be quite reasonable. But all would add to the cost; private parties can largely escape them. They do not try experiments unless they are promising of success. It was doubtful if labour would be as efficient in Government as in private mines."

#### IF THE STATE WANTS TO GAMBLE, WHY NOT?

Mr. E. A. Wallers, chairman and managing director of the Rand Mines, and President of the Chamber of Mines in his evidence, said he had not seriously considered the possibility of State working. It seemed to him that "if the State makes up its mind to gamble—because, of course, it is a gamble—then one cannot see any reason why it should not do so." He opined that the State would have every opportunity of acquiring a mine. He did not think there would be such a rush that the whole of the East Rand would be occupied in twelve months' time, and there would be no suitable area left for the State.

Question: "Do you call mining a gamble?"—"Yes." "You do not think it advisable for the Government to embark on such a gamble?"—"I did not say that. I said that, assuming the State wishes to gamble, I see no objection. With regard to that Far East Rand area, you have probably heard of successes, but probably not of the failures." Mr. Wallers explained that the Rand Collieries spent £700,000 without any success; Rand Klip £220,000; Cloverfield £200,000; all shut down. As regards Daggafontein, possibly £900,000 would be spent on a definite risk to see whether it is a payable proposition. That sum, spent on the two shafts and development, was the definite risk, and that was the gamble. "You will not be able to say for another three years whether Daggafontein will be a payable mine or not. He would not personally advise the Government to gamble to the extent of £800,000 or £900,000."

#### MR. IMROTH'S OPINION.

Mr. Gustav Imroth, managing director of the Johannesburg Consolidated Investment Company, devotes the first part of his evidence to certain anomalies which had arisen in

connection with the Modder Arenas lease. Asked as to State exploitation, he said he would not recommend the Government to take over a section. It would be a tremendous gamble, and he was inclined to say that somebody would be able to buy State property at a very low figure after a while.

#### MR. H. C. HULL'S VIEWS.

Mr. H. C. Hull, Minister of Finance under the Transvaal Government when the present Gold Law was passed in 1908, and for some years subsequently, referred to the failure of the State working of a tin mine in the Pietersburg district. He did not think the State was the best authority, or the most economical authority, to carry out a speculative enterprise such as a gold mine. In the case of the tin mine, after a number of months of real good, sincere effort on the part of the Government and the men, they came to the conclusion it was hopeless. But the people who afterwards took it up seemed to have made it pay. He would "be very sorry to see the Government embark on an enterprise of State mining. If you go in for State mining, you will have to employ engineers, managers, mine captains, and the whole paraphernalia and a managing body. We know how political parties are made up. These things mean appointments to somebody. I cannot imagine that, say, while the Unionist Party is in power, they would offer the post of general manager to a member of the Labour Party, nor would they conceivably offer it to a member of the South African Party, and much less to a member of the Nationalist Party. It would all mean that you had suspicions of—I will not say corruption, because that is too strong a word—but suspicions of political favouritism. Appointments, not on merits, not without a desire to achieve the best economy, but in the main made in party interests." It would be a mistake to put such a responsibility on the Government. Mr. Hull was asked as to the analogy of the Railways and the Post Office, but he said that both these should be run by the State, even if it cost a little more. As to mines, he would rather see that the State makes no loss and gets its share of profits when there are any, and let somebody else find the capital.

#### AN ENGINEER'S VIEW OF THE SPECULATIVE ELEMENT.

Mr. C. B. Kingston, Consulting Engineer to Messrs. Lewis and Marks, said that it would be very inadvisable for the State to embark on mining. There was always a large speculative element in the development of this area. "If the capital can be obtained from individuals outside to develop it, the State gets a very large return from the enterprise without risk. The proper function of the State is to encourage private enterprise and individual initiative, and not itself to enter the field as a competitor."

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## THE GEOLOGICAL SURVEY OF SOUTHERN RHODESIA.

### Detailed Report of the Director for the Year 1915.

In the annual report of the Geological Survey of Southern Rhodesia for the year 1915, the Director writes:—Systematic field work was carried on during 1915 in the Nyamandhlovu, Bubi and Bulawayo districts by Mr. Macgregor and myself, and was a continuation of that initiated in the country around Shiloh in 1914 by Mr. Lightfoot. Mr. Macgregor carried the survey westwards to the Victoria Falls line near Redbank and Morgan's, whilst I worked eastwards, entering upon the Bembesi gold belt. The results of the field work have been unexpectedly prolific, the more important and far-reaching of which relate to the late geological history of the country, and fill up some blank pages in that history. Some interesting types have been found amongst the metamorphic rocks, and an advance made in the classification of the complex and puzzling group which so often forms the country rock of the gold deposits. The peculiar local development of the Karroo system has been worked out and described, and the presence of a newer system, which it is proposed to call the Kalahari system, proved. Some notion of the relative geological age of the Somabula diamondiferous gravels described in the annual report for 1914 has been obtained. The examination of the alluvial deposits of the present river system has yielded interesting results bearing on the variations of the climate in prehistoric times. On the question raised last year, of the existence of auriferous "deep leads" beneath the Karroo rocks, the evidence obtained is inconclusive, but not encouraging. The mapping of an area in the Gwelo district including the Somabula diamondiferous gravels, begun in 1914, was continued by Mr. Zealley. As a summary of the results of this work appeared in last year's report, no further reference to it need be made here. On his return from vacation leave, the same officer took the opportunity of examining the Vaal River alluvial diamond diggings and the diamond mines at Kimberley. Afterwards he superintended the excavation of the fossil bones recently discovered on the Waterworks Reserve, Bulawayo, otherwise being occupied in work in the office.

#### ENQUIRIES AND DETERMINATIONS.

A large number of requests for information and for the examination and determination of minerals and rocks has been dealt with. In addition to supplying geological information with regard to particular localities or districts, enquiries have been answered relating to the ores of gold, nickel, tin, tungsten, lead, antimony, bismuth and to various minerals including graphite, corundum (ruby), barytes, ironstone, asbestos, phosphates, clays, paint-materials, building-stone, mineral oil and water. The wide range of enquiries is an expression of the desire to make a fuller use of the mineral resources of the Territory, and it is the wish of officers of the Department to collect and make available for use all facts which may lead to the mineral requirements of the country being satisfied from local sources. Publications.—The demand for copies of the bulletins and reports of the Geological Survey both from within and without Rhodesia has increased, the demand from without including application for geological facts for educational purposes from universities and colleges. This desire for accurate information is a sign of the growing importance of the Territory, and shows that the work carried on by the Geological Survey is in demand, apart from its immediately local use. There are a number of reports on hand, which it is hoped to publish as soon as the geological maps are printed off and texts completed.

#### REPORT ON THE GEOLOGY OF THE COUNTRY BETWEEN THE QUEEN'S MINE AND NYAMANDHLOVU, MATABELELAND.

The metamorphic rocks examined on the western edge of the Bembesi gold belt belong to the Greenstone Schist group, and include massive coarse-grained varieties of more or less altered dolerite, as well as fine-grained forms, some of which are probably intermediate rather than basic in com-

position, and may or may not have a porphyritic structure. Some little way within the belt bands of acid igneous rocks for the most part altered to quartz-sericite schists are encountered, and acid rocks were found in connection with most of the gold deposits examined. So far as the survey has gone the geological structure of the Bembesi gold-field appears to have much in common with that of other fields. Amongst the Greenstone Schists is a belt of "pillow lavas," which are particularly well exposed at the foot of a kopje near the southern boundary of Mayo farm. The pillows are sack-like bodies several feet in length, and one to two feet in diameter. Their surfaces have the exceedingly fine-grained and dainty appearance of a chilled margin, whilst the interiors are full of vesicles arranged in concentric lines. It is commonly considered that the pillows are formed by molten rock being extruded or flowing into a body of water. The presence of this belt of "pillow lavas" is thus additional evidence for the existence of volcanic rocks amongst the Greenstone Schists, and for believing that a part at least of the volcanicity was submarine or, at any rate, subaqueous. At the locality mentioned above a coarse agglomerate crops out to the east of the "pillow lava," affording confirmatory evidence of volcanic conditions. Mr. Zealley mentioned the occurrence of "pillow lavas" in describing amygdaloidal epidiorites of extrusive origin in the neighbourhood of Bulawayo in 1911 (*Trans. Geological Society, South Africa*, vol. xiv.). In the present instance there has been relatively little dynamic metamorphism, and the pillows show but little sign of distortion. The strike of this belt is about 12 deg. west of north, and the dip is at a somewhat low angle towards west. Traced towards the south, a number of dykes of quartz-porphry and allied acid rocks are intruded into these rocks, and finally in the southern part of the Glen Grey Estate granite appears. The relations of this body of granite, which has not been noticed before, are obscured by an outlier of Forest Sandstone, and a further area must be surveyed before they can be made clear. The granite contains two sets of quartz-veins which strike north-east and north-west respectively, and prospectors have discovered that they contain gold in quantities worthy of notice. Two outcrops on north-westerly veins lay upon the hanging wall of porphyry dykes, which traverse the granite in some numbers. The quartz-veins are rather narrow, and in some cases contain a little iron-pyrites close up to the surface, though this mineral is usually replaced by haematite. One of the north-easterly reefs on which a winze was sunk still contained good values at 35ft., and sinking was being continued. The granite in the walls of the reefs is decomposed, and is said to carry gold in several places. To the westwards in the Kooe (Kokwi) valley Mr. Macgregor found that the strike of the metamorphic rocks was also almost north and south, but that the cleavage, generally well developed along certain belts, ran almost at right angles, producing the deceptive appearance of an east and west strike. The rocks offered a far greater variety than in the eastern area, and included pillow-lavas, tuffs and agglomerates of volcanic origin, as well as coarse-grained massive rocks which are doubtless intrusive. Sodaltrachytes and andesites have been recognised amongst the former, and dolerites, gabbros and quartz-porphyrics amongst the latter.

(To be continued.)

#### MINING EXAMINATIONS.

Study for Certificates as Mine Captains, Mine Managers, Surveyors, Mechanical and Electrical Engineers, and Engine Drivers. Private Tuition and Correspondence Lessons, where personal tuition is impracticable. Practical Mathematics and Electrotechnics. E. J. MOYNIHAN, Consulting Engineer. Cuthbert's Buildings Corner of Eloff and Pritchard Streets. Johannesburg, P.O. Box 2061.



## METRIC SYSTEM: MEASUREMENTS AND CALCULATIONS.

The editor of *The Practical Engineer*, in a recent issue, makes a plea for the harmonising of the English and metric system of weights and measurements, and contributes an interesting suggestion with that end in view. His argument is as follows:

"Mental habit is one of the hardest things in the world to alter—especially if it is in the other fellow. We grow to let the mind work automatically as in addition and multiplication, and a change involves concentration and effort which are not only a burden, but involve liability to error. And so in measurement and computation we struggle with a complication of systems, rather than make the big effort needed for a real solution of the problem."

"Man learned to count and compute on his fingers, and still learns that way. Hence, his computing is by 10s or the decimal system, and 10 digits are universally used in this work. But in measuring the natural division is by halves, thirds and quarters; division into tenths and fifths is bothersome and inaccurate, hence 12, which is divisible by 2, 3 and 4, is the natural number of divisions for measurement."

"To get complete reconciliation of the systems of measurement and computation now used by English-speaking peoples will involve radical departure from some present standard. The metric system, devised by scientists largely interested in computation, brought the system of measurement into harmony with the natural method of computing, but at a loss in convenience of measurement, for only 2 and 5 are available as even divisions of the unit, and one-fifth is not a natural or convenient division for ordinary work, however, well it may apply in scientific measuring instruments."

"The opposite method of compromise, i.e., using 12 digits, has been proposed and many details worked out. It

presents no insurmountable difficulties except ingrained human experience and custom, and the fact that our fingers still remain 10, and these are the first helps to counting and calculating that the child uses. The monetary systems of most countries are also decimal, so that the disturbance to commerce would be unthinkable if a duodecimal or 12-digit system of reckoning were attempted."

"Length of the yard was originally derived from the human reach, and then standardised as a metal bar in London. Length of a metre was meant to be a division of a quadrant of the earth's surface, but the attempt failed, and it is now a metal bar in Paris. So that the meter and yard are both purely arbitrary lengths, and the same applies to the pound and the kilogram. It would seem that a logical thing would be to establish a new unit of length that will harmonise both systems and permit of subdivision and calculation in its own decimal units, and easy conversion to either system. This might well be established as the American system, and adopted by the Pan-American Union as an allowable standard, the names of units being chosen by a scientific committee named by that Union."

"If the United States of America is to enter world markets, our measurements must conform to those of the countries with which we trade, and a simple relation of units, or adoption of the metric units for foreign trade must come."

"In one measurement with which engineers have frequently to deal, there seems no logical course but to change over entirely, namely the measurement of temperatures. All thermometers are graduated on the decimal scale, and there is no possible defence of the Fahrenheit scale except that it exists. The Centigrade scale has science, good sense and large use in its favour, and the sooner the cumbersome Fahrenheit scale disappears the better. We shall need new steam and other tables, but that is comparatively easy, and the use of freezing as 0 deg. and boiling as 100 deg. has everything in its favour. That miserable 32 which appears in nearly every steam computation is a nuisance. If the weather department will only urge, and Congress will sanction the use of the Centigrade scale in all weather reports, the change would be completed in a few months' time and we should forget the old scale, much to the benefit of everybody."

This is an especially interesting contribution at this time when there is an apparently strong movement on foot to substitute the metric for the English system in the United States—a step which American manufacturers declare to be ill-advised because of the expensive changes in equipment involved.

The adoption of the metric system in India, said Alfred Chatterton, Director of Industries and Commerce, in a paper presented to the Indian Industrial Conference at Bombay, noted in *The Engineer*, February 4, 1916, would complicate all its dealings with the rest of the British Empire and would inevitably force it into closer commercial relations with countries using the metric system. It may perhaps be thought that if India led the way, the British Empire would follow; but there is no possibility of the English-speaking races adopting the metric system. That is a dream of visionary enthusiasts. We have accepted the metric system for use in our laboratories, and that is as far as we intend to go. The idea, therefore, of India adopting the metric system does not come within the range of practical politics. In the future we are going to strengthen the ties that unite the various parts of the British Empire, and we may take it as certain that if there is to be any reform in regard to weights and measures in India, it will be in the direction of bringing them into line with the rest of the Empire.



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# WRIGHT'S ROPES.

## JUNE OUTPUT: GROUP RETURNS.

### Rand Mines Group.

The following are the results of crushing operations of Central Mining companies for the month of June:—

Company	No. of Stamps Running.	Tube Mills.	Tons crushed.	Estimated Working Costs per Ton.	Total Fine Oza.	Total Estimated Profit.
Modder B. ...	96	6	45,500	17/10.5	23,788	£58,256
New Modder ...	180	7	53,600	16/10.8	27,844	70,518
City Deep ...	154	9	57,500	20/0.0	28,090	59,323
Village Deep ...	180	7	52,600	20/9.3	18,638	22,882
Village Main R.	160	4	27,000	19/10.2	10,046	14,975
Robinson ...	245	6	56,700	13/10.4	17,434	33,183
Bantjes Cons. .	90	3	21,520	22/2.5	5,504	†1,006
<b>Ttls. &amp; averages</b>	<b>1105</b>	<b>42</b>	<b>314,420</b>	<b>18/3.9</b>	<b>131,343</b>	<b>£258,131</b>
†Loss						

The following are the results of crushing operations of subsidiary companies for the month of June:—

Company	No. of Stamps Running.	Tube Mills.	Tons crushed.	Estimated Working Costs per Ton.	Total Fine Oza.	Total Estimated Profit.
Rose Deep . ...	300	7	63,100	18/00.0	18,334	£19,278
Goldenhuis Dp.	300	7	57,000	20/7.5	17,405	13,625
Nourse Mines ..	260	7	52,000	19/7.3	13,908	6,861
Ferreira Deep ..	280	7	50,080	20/9.9	21,546	37,432
Crown Mines ...	660	26	167,000	19/3.6	53,915	63,072
Durban Rd. Dp.	100	3	27,000	22/7.1	7,884	2,165
<b>Ttls. &amp; averages</b>	<b>1900</b>	<b>57</b>	<b>416,180</b>	<b>19/8.6</b>	<b>132,992</b>	<b>£142,433</b>

### Albu Group.

The following information is officially supplied regarding the June operations of the producing companies of the Albu group:—

Company.	Stamps.	Tons Crushed.	Total Cost.
Aurora West... ..	80	14,650	£13,482
Meyer and Charlton ...	75	14,480	13,956
New Goch ... ..	120	30,000	21,435
Rodepoort United ...	65	30,651	28,365
Van Ryn Estate ... ..	150	37,550	29,231
West Rand Consolidated ...	100	34,200	34,454
	590	161,531	£140,923
Company.	Cost per Ton.	Total Revenue.	Profit.
Aurora West... ..	18/4.8	£18,010	£4,528
Meyer and Charlton ...	19/3.3	34,540	20,584
New Goch ... ..	14/3.5	30,882	9,447
Rodepoort United ...	18/6.1	31,454	3,089
Van Ryn Estates ... ..	15/6.8	46,589	17,858
West Rand Consolidated ...	20/1.8	41,688	7,234
		£203,163	£62,240

Rodepoort United.—Reduced tonnage and profit due to shortage of native labour.

West Rand Consolidated.—Reduced profit consequent on abnormal amount of special expenditure during month.

### Barnato Group.

The results of operations of the Barnato group for June are as follows:—

Mine.	Stamps.	Tons Crushed.	Revenue from Gold
Consolidated Langlaagte ...	100	52,100	£64,313
Ginsberg ... ..	75	14,850	15,476
Glencairn Main Reef ...	160	20,200	13,593
Government G.M. Areas ...	100	57,500	75,789
New Primrose ... ..	140	23,000	17,388
New Unified ... ..	60	14,000	13,423
Quest ... ..	35	3,421	1,886
Van Ryn Deep ... ..	80	41,600	87,631
Witwatersrand ... ..	215	45,600	55,614
<b>June Totals</b> ... ..	<b>965</b>	<b>275,271</b>	<b>345,113</b>
<b>May totals</b> ... ..	<b>965</b>	<b>283,696</b>	<b>£352,499</b>
Mine.	Total Working Costs.	Working Costs per Ton Milled.	Gross Profit including Sundry Revenue.
Consolidated Langlaagte ...	£40,560	15.570	£24,081
Ginsberg ... ..	12,556	16.910	3,049
Glencairn Main Reef ...	12,664	12.539	1,067
Government G.M. Areas ...	56,910	19.795	19,275
New Primrose ... ..	14,297	12.432	3,202
New Unified ... ..	9,399	13.427	4,101
Quest ... ..	2,859	16.711	+867
Van Ryn Deep ... ..	38,471	17.252	50,109
Witwatersrand ... ..	33,127	14.529	24,176
<b>June totals</b> ... ..	<b>£220,843</b>	<b>16.045</b>	<b>£129,060</b>
			<b>Loss 867</b>
			<b>128,193</b>
<b>May totals</b> ... ..	<b>£226,632</b>	<b>15.977</b>	<b>£129,958</b>

Monthly Gross Profits.—January, £123,882; February, £122,713; March, £126,172; April, £125,802; May, £129,958; June, £128,193.

### Neumann Group.

The following are particulars of the results achieved by the crushing companies of this group during last month:—

	TONS.	YIELD.	PROFIT.
Witwatersrand Deep ... ..	42,710	£53,922	£15,559
Wolhuter ... ..	34,200	45,309	13,836
Consolidated Main Reef ...	27,710	41,435	14,059
Main Reef West... ..	25,210	27,894	3,054
Knight Central ... ..	26,500	29,293	3,473
<b>Total for group</b>	<b>£197,853</b>	<b>£49,981</b>	

### Brakpan Mines.

The following information is officially supplied in regard to the June, 1916, output:—Stamps working, 140; running time, 25 days; ore crushed, 60,000 tons; tube mills working, 10; ore hoisted, 67,543 tons; ore from dump, nil; waste sorted, 12.17 per cent.; fine gold declared, 21,888.46 ozs.; value declared, £92,076 (equal to 30s. 8.30d. per ton milled); working costs, £56,913 (equal to 18s. 11.65d. per ton milled); working profit, £35,163 (equal to 11s. 8.65d. per ton milled).

### Manicaland Output.

The mineral output of the Territory of the Companhia de Moçambique (Manicaland) for the month of May, 1916, was as follows:—Manica Alluvial, dredged 35,000 cubic metres; 359 35ozs.; value, £1,489 12s. 9d.



## THE COAL RESOURCES OF SOUTH AFRICA.

### Comparison of Output of Union and Other Coal Producing Countries— General Manager of South African Railways on Position.

The following extracts having reference to the coal deposits and the coal mining industry of South Africa, taken from the Third Interim Report of the Dominions Royal Commission, are quoted as worthy of note by the General Manager of the South African Railways, in his annual report for 1915:

The coal deposits are enormous, but comparatively undeveloped. In 1913 the total output only amounted to 8,800,000 tons, valued at something over £2,200,000. The industry has, however, shown remarkable growth in recent years, and the nearness of the coalfields to the Witwatersrand is of immense importance in contributing to low working costs on the gold mines. The cheapness of the supplies is also of importance to the railways, and, as we shall have occasion to point out later on, the growing amount of South African coal used for export and bunkering purposes should exercise a considerable influence upon Imperial ocean communication. The possession of abundant and easily-worked coal may also be of great value in future years in the development of subsidiary industries in the Union, particularly as an aid to working the undoubtedly large iron deposits which exist at several points, all, somewhat unfortunately, in districts far from the coast. The Government have, in recent years, given special encouragement to the coal industry by the grant of reduced railway rates for export and bunkering, whilst large and costly works of deviation are now in progress on the line from the Natal coalfields to Durban, which will reduce the ruling gradient between the coalfields and Maritzburg from 1 in 30 to 1 in 65, and enable much heavier train loads to be taken. We find with concern that as yet no steps have been taken to discourage or prevent the reckless waste that is going on in some of the coal mines in Natal. In certain districts, of two seams in the same mine, only one is being worked, namely, the under one. The upper seam is falling in and the coal lost to the country.

Sir William Hoy adds:—Subjoined, is a comparative statement embodying particulars of the coal output of the important coal-producing countries of the world:—

Country.	Year.	Tons (2000 lbs.)
United States ... ..	1913	570,048,125
United Kingdom ... ..	1913	321,922,130
Germany ... ..	1913	211,141,047
France ... ..	1911	42,585,760
Russia ... ..	1912	36,778,200
Belgium ... ..	1912	25,326,731
Japan ... ..	1912	21,996,526
India ... ..	1913	18,152,970
Austria-Hungary ... ..	1913	18,151,881
Canada ... ..	1913	15,115,089
Australia ... ..	1913	13,908,015
Spain ... ..	1912	3,997,297
New Zealand ... ..	1913	2,114,566
Union of South Africa—	1915	Tons.
Cape ... ..		46,850
Transvaal ... ..		5,202,805
Orange Free State ...		727,553
Natal ... ..		2,304,116
		8,281,324*

NOTE.—These figures do not include brown coal or lignite.

No very reliable estimate of the Union's coal resources appears to be available, but the following figures, taken from Part 3—Geological Survey—of the Annual Reports of the Mines Department for the year 1911 (U.G. 50-'12) give a rough indication of the total quantity of coal available for exploitation in the Union:—

Province	Approximate coal-bearing area, Square Miles	Average thickness s.	Rough Estimate of available coal, Tons.
Transvaal ... ..	5,000	6ft.	36,000,000,000
Natal ... ..	1,000	7ft.	8,400,000,000
Zululand ... ..	1,250	4ft.	6,000,000,000
Orange Free S., Cape, Basutoland and Swaziland ... ..	1,000	4ft.	4,800,000,000
Total ... ..			55,200,000,000

In comparison with some countries, South Africa's coal resources are small, but the present annual output is also insignificant compared with the total coal available. The coal industry has unlimited scope for development. The time is opportune for South Africa coal to gain an ascendancy on the African coast, both East and West, and on the eastern trade routes, and advantage is being taken of present opportunities as far as war exigencies permit. If, after the abatement of the present inflated demand for coal arising from the war and the consequent disturbance of shipping, new outlets can be found for South African coal, and certain of the temporarily diverted shipping can be induced to adhere to the Cape route, there should be very considerable development in the coal mining industry. The existence in South Africa of large quantities of coal of proved quality for steamship purposes should, as the coal becomes better known, be an influencing factor in deciding the route to be followed in the eastern trade and should encourage shipping to touch at Union ports and to engage in South African trade. Such a diversion of shipping would be of great importance to the Union and would open up new markets for South African products.

\*Does not include coal used by the coal mining companies for their own purposes.

### ANSWERS TO CORRESPONDENTS.

All inquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to inquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"V.P."—The Henderson dividend will be declared shortly.

"Investor."—We are not disposed to criticise the new venture, the Far East Rand Proprietary, Ltd., because of the obvious plagiarism of its title. In fact, the latter does not go far enough. In view of its field of operations, we should have called the venture the "Too Far East Rand Proprietary."

"Inquirer."—Certainly, the New Compound Diamonds, Ltd., is a legitimate mining venture—not, as you seem to infer, a scheme to turn out synthetic or artificial gems. The title might have been more happily chosen.

"Interested."—You may demand your money back, and if it is not forthcoming, consult a solicitor.

"New Flora" (Capetown).—(1) We have no record of the fate of the New Flora, Ltd., floated at Capetown in 1889. Perhaps some reader may be able to help. (2) Enquiries are being made, and the matter will be dealt with in an early issue.

"F.U."—The Department of Mines, Ottawa, will give you all particulars, if you care to write to them.

"S.W.W."—17 stamps—2 Nissen and 15 Californians.

"Shareholder."—(1) No. (2) Hold. (3) Leave the affair alone.

## MISCELLANEOUS MINING DIVIDENDS IN 1916.

BELOW are recorded the dividends declared during the present year by miscellaneous mining and kindred companies. The particulars include the amount, date of declaration and date of payment of the dividends, the capital on which the dividend is paid and the amount of the distribution, the total amount paid by the various companies, and the amount paid on account of the last fiscal year. Shares are of the denomination of £1 unless otherwise stated:—

Company.	Amount.	Date of declaration.	Date of payment.	When x1.	Capital on which dividend paid.	Amount of distribution.	Total paid per cent or share.	Total declared for twelve months ended.
Anglo-French Exploration ... ..	8%	April 10	Apl. 29	May 12	500,000	40,000	—	Dec., 1915, 8%
Cons. Mines Selection (10) ... ..	1/6	Mar. 1	Apl. 27	Apl. 28	552,500	82,875	122	Dec., 1915, 1/6
De Beers Pf. (50) ... ..	10/	Mar. 29	—	May 12	2,000,000	400,000	—	—
Dumdee Coal ... ..	1/	Jan. 14	Mar. 10	Mar. 10	153,500	7,675	102	Dec., 1915, 7½%
Eldorado Banket ... ..	1/6	Jan. 11	Feb. 10	Feb. 10	300,000	22,500	207½	Mar., 1915, 17½%
Gaika Gold ... ..	1/	Jan. 10	Jan. 31	Feb. 10	273,495	13,675	40	June, 1915, 15%
Globe and Phoenix (5) ... ..	1/	Jan. 6	Feb. 14	Feb. 24	200,000	40,000	957½	Dec., 1915, 2/-
Glynn's Lydenburg ... ..	1/6	Jan. 27	Mar. 9	Mar. 10	170,000	12,750	332½	July, 1915, 20%
Lonely Reef ... ..	1/	Jan. 26	Mar. 17	Mar. 29	271,007	13,550	105	Dec., 1915, 15%
Mess. (Transvaal) Develop. (5) ...	1/	April 11	May 6	May 12	181,788	36,357	20	—
Middelburg Coal Pf. ... ..	7/6	Mar. 1	Apl. 1	Apl. 13	64,899	1,622	—	—
Namaqua Copper (£2) ... ..	8/	April 25	May 9	May 12	183,662	37,732	357½	Dec., 1915, 20%
New Geduld Deep (2) ... ..	7/3	Mar. 28	—	—	30,000	3,750	25	Dec., 1915, 12½%
Premier Diamond Pref. (5) ... ..	6/3	Feb. 8	Mar. 17	Mar. 29	40,000	50,00	—	—
Rezende ... ..	1/	April 19	May 6	May 12	118,435	5,922	54¼	Dec., 1915, 11¼%
Selukwe Gold (2 6) ... ..	1/2	Mar. 14	Mar. 31	Apl. 13	55,981	3,732	1/4	—
Shamva Mine ... ..	1/6	Mar. 8	Mar. 31	Apl. 13	600,000	45,000	35	Dec., 1915, 27½%
Tweefontein Collieries ... ..	19%	Mar. 23	Apl. 1	Apl. 13	60,000	11,400	110	Dec., 1915, 25%
Tweefontein Pref. ... ..	4%	Mar. 23	Apl. 1	Apl. 13	75,000	3,000	—	—
Uitkyk Collieries Pr. ... ..	4%	April	Apl. 1	Apl. 28	75,000	3,000	—	—
Wankie Colliery (10) ... ..	7/6	Mar. 8	Mar. 26	Mar. 29	405,236	20,262	107½	Aug., 1915, 7½% + 5% cash.
Witbank Colliery ... ..	2 6	Feb. 16	—	Apl. 13	210,600	26,250	262½	Aug., 1915, 25%

### S.-W. Transvaal Diamonds—May Returns.

The returns of diamonds found during the month of May in the various fields throughout the South-Western Transvaal show a total of 3,877½ carats, valued at £20,141 15s. 6d., this being well up to the average of the previous months of this year, the five months' figures being as follows:—

	Carats.	Value.
January ... ..	2,486½	£11,818 7 0
February ... ..	3,606½	20,970 10 6
March ... ..	4,041	20,632 16 0
April ... ..	3,592½	18,465 0 0
May ... ..	3,877½	20,141 15 6

#### THE INDIVIDUAL PRODUCERS.

There were 56 areas mentioned in the returns. The following is a list of the principal producers:—

	Carats.	Value.
London ... ..	930¼	£5,090 15 6
Dievedraai ... ..	48½	2,641 4 6
Bloemhof ... ..	504½	2,419 17 6
Schweizer-Reneke ... ..	136¼	953 2 6
Koppiesvlei ... ..	183	858 10 0
Kromellenboog ... ..	114½	778 5 0
Kafferspan ... ..	144½	619 10 0
Kameelkuil ... ..	114½	585 10 0
Zevenfontein ... ..	98¾	566 15 0
Christiana ... ..	90¾	497 2 0
Goedechoop ... ..	100	484 10 0
Plessisdam ... ..	67¼	363 5 0
Panfontein ... ..	86¼	359 12 6
Mooifontein ... ..	74¼	328 0 0
Mamusa ... ..	79¾	297 10 0
Langkuil ... ..	30	284 10 0
Klipkuil ... ..	49¾	246 0 0
Rietput ... ..	45¾	228 2 6
Eastleigh ... ..	42½	205 5 0
Boschplaats ... ..	40	204 10 0
Doornbult ... ..	47½	187 0 0

Eerstebegin ... ..	28	183 7 6
Diamantdoorns ... ..	29¾	179 5 0
Katdoornkraal ... ..	39¼	163 0 0
Cawoodshope ... ..	30½	153 18 0
Grootpoort ... ..	18½	131 0 0
Kareepan ... ..	39¾	126 10 0
Modderkraal ... ..	20	116 10 0
Rondevlei ... ..	23¼	114 0 0
Homansvlei ... ..	41½	102 0 0

### Goerz Group.

Results of operations on the producing mines of this group for the month of June, 1916:—

Company	Stamps.	Tons Crushed.	Total Revenue.	Revenue per ton
Geduld Proprietary ... ..	60	26,400	£41,673	31/7
May Consolidated ... ..	100	13,060	10,001	15/4
Modder Deep Levels ... ..	70	38,900	71,892	37/0
Princess Estate ... ..	60	23,300	28,945	24/10
Totals ... ..	290	101,660	£152,511	—

Company.	Costs.		Profit.	
	Total.	Per Ton.	Total.	Per Ton.
Geduld Proprietary ... ..	£28,453	21/7	£13,220	10/0
May Consolidated ... ..	10,108	15/6	Loss £107	—
Modder Deep Levels ... ..	30,945	15/11	40,947	21/1
Princess Estate ... ..	27,863	23/11	1,082	0/11
Totals ... ..	£97,369	—	£55,142	—

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## Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

### Far East Rand Areas.

To the Editor, *South African Mining Journal*.

Sir,—There has been so much said and written on the above subject; and as neither side have yet come forward with a practical scheme acceptable to all parties, I trust you will spare some of your valuable space to a scheme which I maintain should meet the case and satisfy all concerned. When the Government Areas were compelled, under their agreement, to offer a certain amount of the working capital to the public, they literally ran over themselves to subscribe to it, and if I remember rightly, the amount was over-subscribed seven or eight times. We know that the only areas that the mining houses at the moment are anxious to get hold of are the following four, viz.: Brakpan, Geduld, Springs and Daggafontein, or portion of Modderfontein. The other areas do not count at present. The aforementioned, however, are known to be rich and we can take it as a fact that they will prove of equal value with the mines at present working on the aforementioned farms. The Government should form these areas into four companies, each with a working capital of say £1,250,000, and take their share, as provided under the old leases laws; or they might form one company, with a capital of £5,000,000. Subscribers would be interested in all four companies. Work should be commenced on all the areas simultaneously. The public would be asked to subscribe this £5,000,000 at par, payable, say, 4s. per £ share per annum, as the whole capital would only be required gradually over that period of say five years. The public would, therefore, be safeguarded should one of the areas not prove profitable. The Government could appoint five directors and the public an equal number. I am absolutely convinced that the public would over-subscribe a scheme of this nature on the above terms, and there need be no delay about getting the work started in these vastly wealthy areas. The Government would simply take the place that the Mining Houses took in the past. I may say that there is very little doubt that the present successful mines in that area, such as Van Ryn, New Modders, Modder B, Modder Deep, Brakpan, Geduld, Van Ryn Deep and Springs, that every one of these companies have become the huge successes they are, have paid enormous dividends, beside the shares standing at enormous premiums, in spite of, say, 50 per cent. of the nominal capital going to the vendors, that is the capitalists. The Government would be satisfied under the old Leases Law with considerably less.

They would simply take the place that the Mining Houses have taken in the past. The public would be more than satisfied, as they would be able to subscribe at par for shares which they have hitherto had to purchase at considerable premiums, if they wanted to participate. The following small table will give some idea what the public are paying for shares in that area:—

Van Ryn Deep ... ..	£1 shares	...	£3 10 0
New Modders ... ..	4 shares	...	17 0 0
Modder Deep ... ..	1 shares	...	6 12 6
Modder B ... ..	1 shares	...	6 15 0
Brakpan ... ..	1 shares	...	4 0 0
Springs ... ..	1 shares	...	2 10 0
Geduld ... ..	1 shares	...	2 0 0

The above items will give some idea what profits the vendors and the subscribers to capital, in this area, have made in the past, and there is no reason whatever why the four areas above-mentioned should not prove equally profitable. Everyone could subscribe according to their means, so that the capitalists would get their share equally with the smaller subscriber. This is a scheme which I maintain should commend itself to all parties interested and should also prove acceptable to the Government and the urgency which is on everyone's lips to get these areas started would be overcome.

—Yours, etc.,

JAMES H. GOLDBREICH.

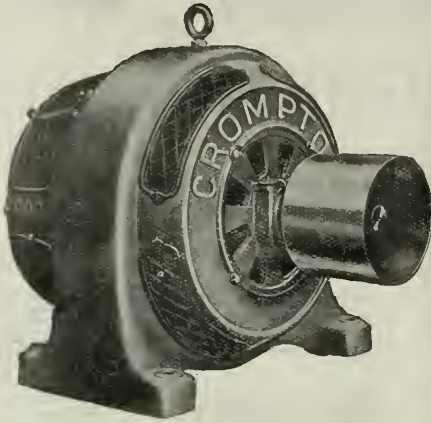
### Magadi Soda Company.

At a meeting of the Magadi Soda Company, held in London this week, it was reported that there was a loss of £17,557, made up of expenses incurred prior to the war. The loan account with Messrs. Samuel and the Central Mining and Investment Corporation amounted to £34,000. Owing to the war work on the lake has been suspended. Sample shipments forwarded in 1915 were favourably reported on. The chairman said it would be necessary to raise fresh capital.

### BUSINESS MANAGER.

The position advertised by "K" in the "S.A. Mining Journal" of June 24th, 1916, has been filled.

# Complete Electrical Equipments



We undertake the complete electrical equipment of Mines, Mills, Factories, and all large works. The machinery installed by us is made in our extensive works at Chelmsford, England. Every Machine is first subjected to most severe tests—far more severe than they will meet in actual practice.

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### Outside System of Electrical Blasting.

By H. H. CLARK, N. V. BRETH, and C. M. MEANS.

The purpose of an outside shot-firing system is to provide means for firing the shots when no one is in the mine, in order to eliminate completely any risk to life that may attend blasting. The system is intended as a safety measure, and for that reason has been investigated by the U.S. Bureau of Mines. An outside firing system consists of a source of electric power outside the mine, conductors leading from the surface to all working places, and a system of switches for keeping the lines free from stray currents and from the firing current until all men have withdrawn from the mine. The most complete systems employ switches at or near the entrance to rooms and working places, at the mouth of each cross entry, and at the point underground where the shot-firing circuit enters the mine. At that point there is also established a break in the circuit to guard against discharges of lightning. The break is usually accomplished by providing flexible conductors, about 6 ft. long, so arranged that they can be readily disconnected from the circuit and locked in the open-circuit position until all other underground connections and switches have been closed. In addition there are provided on the surface a switch for connecting the shot-firing system to the power supply, and another switch to be operated for the actual firing of the shots. This system allows the firing circuits to be completed step by step, beginning at the working places and progressing toward the mine entrance. The underground circuits are therefore not complete until the switch at the mine entrance has been closed and the 6 ft. break, mentioned above, has been bridged across. The system as a

whole is not connected to the source of electric power until it has been ascertained (by a suitable checking system) that all men are out of the mine. Even then it is still necessary for the man commissioned to fire the shots to close a locked control switch mounted in an enclosure to which he alone has access. Thus the discharge of blasts by stray currents is prevented by the room and entry switches, the discharge of blasts by lightning is prevented by the 6 ft. break at the mine entrance, and the discharge of blasts by accidental connection to the shot-firing generator is prevented by all these switches, as well as by the two switches that are placed on the surface. Outside shot-firing systems are already installed in some of the mines of Utah, New Mexico, Oklahoma, Alabama, and Kansas.

Enquiries regarding subscriptions and advertisement rates will be answered by our London agents, Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London.

### New Compound Diamonds Limited.

(TO BE INCORPORATED IN ORANGE FREE STATE.)

Intending Subscribers are reminded that the applications for Shares must be in by Monday, the 10th day of July, 1916.

For Prospectus and full details apply to T. E. Duckles, Acting Secretary, 82/84, Exploration Building, Fox Street, Johannesburg, or Box 2641.

\*From "Shot-Firing in Coal Mines by Electricity Controlled from Outside." Technical Paper 108, United States Bureau of Mines.



## THE WEEK IN THE SHAREMARKET.

Firm but Dull—Premier Diamonds Revive—Small Stocks and Tins Lifeless.

Notwithstanding the recovery of the stocks which were so heavily liquidated towards the close of last month, business has been considerably restricted. Over 40 stocks are now ex-dividend, with a corresponding reduction in price in most cases. The Modderfontein trio, however, are actually higher on balance, though why the B's and Deeps should again be running level is difficult to understand when the former has the advantage over the latter of  $7\frac{1}{2}$  per cent. in the dividend declared. On Friday morning prices appreciated in the better class stocks. Government Areas made 37s. 9d., Modder B's and Modder Deeps were bid to £6 9s., and Springs to 53s. 9d. In the lower-priced division, Main Reefs at 18s. and Bantjes at 12s. 3d., are to the good. On the other hand, 70s. 6d. was the best price obtainable for Pretoria Cements, and the highest offer for Gedulds was 41s. Kleinfonteins, after looking like firming up, have sunk back to the 26s. level. On Thursday the first bid for Premiers was made after more than a year of quiescence. The Preferred stock being asked for at £6 7s. 6d. without eliciting a seller's price. Springs Mines look like being steady once more for good. The fall from their highest of 58s. to 47s. was a heavy one and to-day's middle price of 54s. is quite as high as anyone can reasonably expect them to be. Gedulds fall of 10s. has been partially balanced by a recovery of half the amount, which was more than might have been expected in view of the small dividend. Very little interest is being taken in the small stocks with, perhaps, Rand Klips as an exception. Tins may well be termed hopeless, and show no signs of improvement.

	Fri. 30th.	Sat. 1st.	Mon. 3rd.	Tues. 4th.	Wed. 5th.	Thurs. 6th.
New Geduld Deeps	4 10*	4 10*	5 0	5 0*	5 0*	5 0*
New Heriots	—	—	45 0*	45 0*	45 3*	—
New Kleinfonteins	26 6	26 0*	27 0	27 6*	26 0	26 0*
New Modders	340 0*	—	—	330 0*	330 0*	330 0*
New Rietfonteins	—	—	0 9†	0 9	0 9†	0 9†
New Unifeds	11 6*	—	5 0*	—	5 6*	—
Nigels	—	—	70 0*	70 6*	70 6*	70 6*
Pretoria Cements	—	—	1 9*	1 9*	1 9*	1 9*
Princess Estates	—	—	2 0*	3 3*	3 7*	3 6†
Rand Collieries	7 7	7 9*	8 0	8 1*	7 9*	7 9
Rand Klips	72 6†	—	—	—	—	68 0†
Rand Mines	1 10*	1 10*	1 10*	1 10*	1 10*	1 9*
Rand Nucleus	—	4 0*	4 0†	4 0†	4 0†	4 0†
Randfontein Deeps	10 9*	—	—	11 0*	11 0*	10 9*
Randfontein Estates	13 0†	—	—	11 0*	11 0*	12 0†
Rooibergs	—	8 0*	8 6*	8 6	8 3*	8 0
Rood, Uniteds	—	—	2 0*	2 0*	—	2 6
Ryan Nigels	1 9*	2 0†	1 6*	1 6*	1 6*	1 6*
Shebas	1 6*	—	1 6*	1 10	1 9*	1 6*
Simmer Deeps	4 0*	4 3	4 3*	4 4	4 3	4 2*
S.A. Lands	51 0	52 0	54 3	54 3	53 3	53 3*
Springs Mines	16 3*	16 3*	16 6*	16 10*	16 9*	16 6*
Sub-Nigels	65 6*	64 0*	64 3*	64 6*	66 0†	64 0*
Trans. Coal Trusts	15 0†	15 3†	—	15 3†	15 3†	—
Transvaal Lands	26 3†	25 0*	26 0*	—	—	26 6†
Trans. G.M. Est.	69 0*	66 6	66 6*	66 6*	66 0*	66 3*
Van Ryn Deeps	30 6†	—	—	26 6*	—	—
Village Deeps	—	22 6†	—	—	18 0*	—
Wellgedachts	1 3*	1 3*	—	1 0*	—	1 0*
W.R. Estates	25 0*	22 0*	22 9*	23 0*	24 0†	22 6*
Wit. Deeps	9 9*	9 9*	9 9*	9 10	9 10*	9 10*
Wolhuters	9 3*	9 0*	8 9*	9 0	8 6	8 0*
Zaaiplaats Tins	—	—	—	—	—	—

\* Buyers. † Sellers.

	Fri. 30th.	Sat. 1st.	Mon. 3rd.	Tues. 4th.	Wed. 5th.	Thurs. 6th.
African Farms	8 6*	8 9	8 6*	8 9*	9 0	8 9*
Apex Mines	5 9	5 0*	5 6*	5 6*	5 6*	5 9
Bantjes Cons.	12 0	11 10	12 0	12 0	11 7*	11 10*
Brakpan Mines	77 0*	73 0*	73 0*	72 0*	—	75 6
Breyten Colls.	—	19 6*	20 0*	—	20 0*	—
Brick and Potteries	5 0*	5 0*	—	5 0*	—	5 0*
Bushveld Tins	0 9	0 7*	—	0 7*	—	0 7*
Cassel Coals	—	—	20 0*	20 0*	20 0*	—
Cinderella Cons.	5 9*	5 9*	5 9*	—	5 9*	5 9*
City and Suburbans	—	30 0*	30 0*	30 6*	30 6*	30 6*
City Deeps	78 3*	74 9*	74 0*	76 0*	75 0*	75 0*
Cloverfield Mines	8 0*	8 5*	8 7	8 6	8 3	8 0*
Clydesdale Colls.	10 9*	—	10 9*	10 9*	—	10 6*
Concrete Construc.	4 6†	4 6†	—	—	3 0*	3 0*
Con. Investments	15 0*	14 0*	—	14 0*	14 0*	14 0*
Con. Langlaagtes	—	30 0*	32 0†	32 0†	30 0*	29 9
Con. Main Reefs	19 0	—	17 9*	17 9*	17 9*	18 0†
Con. Mines Selec.	—	—	—	16 9*	17 0	17 0
Crown Diamonds	2 0*	2 0*	2 3*	2 0*	2 0*	—
Durban Rood. Deeps	—	—	11 0*	15 0†	11 0*	14 0†
E.R. Centrals	8 0*	8 0*	8 0*	8 0*	8 0*	8 0*
E.R. Coals	3 0*	3 3*	3 5	3 5	3 3	3 3*
E.R. Deeps	1 2*	1 3	1 3	1 3	1 3*	1 3*
E.R. Minings	—	—	15 0*	—	—	—
East Rand Props.	15 9	15 6	15 6	14 9*	14 6*	14 6
East Rand Debs.	£75*	£72½	£72½	£72½	£72½	£72½
Eastern Golds	—	—	1 3*	1 6*	1 6*	1 6*
Ferreira Deeps	—	—	—	—	—	29 0†
Frank Smith Dias	2 0*	—	2 0*	2 1*	2 0*	2 0*
Geduld Props.	39 6*	41 0	42 0	41 9	42 0	41 9
Glencairns	—	—	—	—	1 0*	—
Glencoe Colls.	—	—	6 6*	6 6*	—	6 6*
Goetz and Co.	13 6*	—	—	13 6*	13 6*	13 6*
Govt. Areas	36 3	37 0	38 0	37 0*	36 9	36 9*
Jupiters	7 8	7 9*	—	7 9*	7 6*	—
Klerksdorp Props.	2 1*	2 1*	2 1*	2 1*	2 1*	2 1*
Knight Centrals	10 9*	11 0	10 10*	12 0*	12 0*	11 3*
Lace Props.	5 3	5 2*	5 5	5 7	5 3*	5 3*
Leeuwpoot Tins	12 6*	12 9*	13 9*	14 0*	14 0*	13 3*
Lyden. Farms	6 4	6 4	6 6*	6 11	6 6	6 6*
Main Reef Wests.	6 6	6 6*	—	1 1*	1 1*	1 1*
Middelvel Est.	1 1*	—	—	—	—	—
Modder B's	133 0*	126 6	126 6*	127 0*	128 0*	129 0†
Modder Deeps	132 0*	126 0	126 3*	128 0*	127 9*	127 0*
Natal Nav. Colls.	—	16 0*	—	17 0†	—	—
New Boksburghs	—	1 4*	1 3*	1 6*	1 6*	1 7*
New Elard Dias	17 6†	17 6†	17 6*	17 6*	17 0*	17 0*
New Era Cons.	7 6*	7 9*	8 0*	8 0*	8 4	8 3*

\* Buyers. † Sellers.

## PERSONAL.

Mr. Ross Skinner is returning to the Rand in September as Resident Director of the Central Mining and Investment Corporation, Limited.

\* \* \* \*

The following is the list of new officers of the Chemical, Metallurgical and Mining Society of South Africa:—President, Prof. J. A. Wilkinson (unopposed); vice-presidents, Mr. H. A. White, Mr. J. Gray, and Mr. G. Hildick Smith. Members of the Council, Messrs. A. Whitby, K. L. Graham, F. W. Watson, J. Watson, W. W. Lawrie, E. M. Weston, C. Toombs, J. Chilton, H. R. Adam, H. Meyer, F. Wartenweiler, F. G. Macdonald. Hon. Treasurer, Mr. J. Littlejohn (unopposed).

\* \* \* \*

The following is the list of certificates issued by the Mines Department for the month ended 30th June, 1916:—Mine Managers' Certificates—Metalliferous Mines: A. J. T. Cross, H. Anderson, G. H. Keegan. Electrical Engineers' Certificates: A. L. Stirtion, J. P. Harding, J. Pope, C. J. Tutt, D. P. Sharp, K. R. Sneddon, D. Laurie, G. Sneddon, P. G. Watson. Mine Overseers' Certificates—Metalliferous Mines: J. Barlow, W. A. Harris, C. J. Kimber, A. D. Brinkley, J. Jeffery, E. Marker, F. S. Corrie, E. H. A. Joseph, L. Pope, F. Gilbert, E. J. Judells, J. F. Sullivan. Collieries: J. H. Anderson, G. H. Keegan. Electrical Engineers' Certificates—Mines: L. Kummer, S. E. May, H. M. West, T. E. Stanton.

\* \* \* \*

The Secretary of the Anglo-French Exploration Company, Ltd., intimates that Mr. George Rennie Airth, who for some years has held the position of manager in London of the Anglo-French Exploration Company, Ltd., has been elected to a seat on the Board, and has been appointed managing director in London.

## THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

**Business Slow but Disposition Good—Electrical Demands Increasing from Rhodesia—the American Trade—Chemicals Erratic.**

BUSINESS still continues very slow indeed; therefore, the July opening has certainly not come up to the anticipations that the mine buyers would come in more freely. Whether they are standing off to ascertain how the alteration of freight rates will affect merchants, remains to be seen. However, there is a hopeful disposition that July will turn out quite up to the average. The mines are in the market for Baltic and Oregon pine logs, which are getting very scarce, and the idea prevails that substitutes will have to be found unless shipments come forward to fill up the absorption by the mines' underground works and shafts.

As anticipated in these notes, a fall in the Metal Market has occurred in Britain, presumably on account of the Government there revising and, evidently, reducing their commitments, when their contracts fell due on June 30th. According to cables received this week, standard copper was £99 per ton, as compared with £124 a month ago. Straits tin also is £170½, as against £183½, and English lead £27½ against £33½ a month ago. Another pointer—and not a mean one—is that spelter is selling in London at £48 spot cash and £44 for three months, which is a sure indicator that the market feeling is a lowering one for forward delivery.

### THE AMERICAN TRADE.

In an interesting interview with an American representative, it was gathered that New York is anything but in a flourishing condition, as the munition works and other war material and merchandise directly or indirectly connected with the war, have fallen far short, on the whole, of counterbalancing the trade, both passengers and goods between America and the Central European countries, under pre-war conditions. Paraffin has risen 6d. per case this week chiefly on account of the advance in the price of the tins and packages. Here again it is difficult to forecast the future conditions because, when the Russian and other supplies come into the world's markets, abundantly, values must recede. In the meantime, we may run along much as we are with perhaps dearer motor spirit for a time, as the world's consumption has never been a patch upon what it is now. American cables have again been received during the week showing a tendency to place forward business at a fraction under to-day's quotations.

**Chemicals.**—Prices continue erratic, and not always controlled or guided by the British market, as there are good stocks of most of the leading lines in South Africa, and as the mines have six months' supplies or thereabouts, no real shortage has been felt so far. In consequence of the mines having such ample stocks of mercury, the price of £18½ given in our standard list, must be taken as nominal as dealings are so few and in such small lots, outside the mine trade, that the volume of business at the moment is not sufficient to really test the local price. For example, if two or three mining requisitions were put out then the keen competition now very much in evidence would quickly tell the tale. A suggestion has been made that chloride of lime should be manufactured locally, as it has risen in Britain from £8 to £35 per ton. As regards local industries in the chemical line, it is satisfactory to note that lead nitrate is being produced here and largely supplied to the mines at £55 per ton.

**Iron, Steel and Hardware.**—Wrought iron pipe fittings up to 4in. have advanced to plus 25 per cent. on the standard list price, instead of plus 10 per cent., making an increase of 15 per cent. on this occasion. This brings the value even on the fittings over the 4in. gauge, as they are all the same now. Other prices remain much as before, with little business passing. The engineering shops are quite busy with mine orders, also the local ironmakers and steel-casting foundries. The orders in hand chiefly are for workmen's lift cages, cones, skips, and other things, at one time so largely obtained from Overseas.

**Lime, Cement and Sundries.**—The price of lime has not officially fallen, but some outside competition has brought the price of lime down 2d. per bag, which is the amount of the drop in the price of the bags themselves. The dealers and lime-makers, etc., are on the qui vive in reference to the result of the acceptance of the tender for a big compound to be erected on the Springs Mines.

**Oil, Colours and White Lead.**—There has been quite a decided drop in the demand for town work, which is an indication that trade has fallen off for repairs and jobbing work generally. One firm is having a big sale of wallpapers, notwithstanding the increased price in Britain. Here again the freight question is bothering importers; but as a set off against any disturbance in that direction, stocks in the oil and colour lines are so plentiful that, it is said, some cutting of the recognised prices has commenced. Travellers on the Reef state that it is more difficult to obtain orders, but country business is not at all bad. Hence some travellers have been diverted from the town to the country trade.

**Electrical Goods.**—Electrical motor power must be extending in Rhodesia, as some decent orders have been placed in Johannesburg for pumps, hoists, winding machinery, fans and blowers. One broker also was in the market for tobacco-cutting machinery for Rhodesia during the week. Ordinary electrical goods are accumulating, hence an easier tendency.

**The Natal Coal Fields.**—Business is gradually increasing as electrical coal cutters have been enquired for, but the information does not say if business was actually done. However the collieries are getting supplies of tools, such as crowbars, picks, hammers, and the smaller every-day lines from Johannesburg.

### REVISED PRICE LIST.

Approximate war prices, subject to quick change.—Mining and building hardware: Iron, imported, round up to 1 in., 30s.; 1½ in. to 2 in., 13s. 6d.; 2½ in. to 6 in., 25s. per 100 lbs. Do., square, up to 1 in., 27s. 6d.; 1½ in. to 2½ in., 13s. 6d.; 2½ in. to 5 in., 25s. Flats, 3-16 in., 37s. 6d.; all from ½ in. up, 25s. Angles, ½ in. to 3-16 in., 30s.; ½ in., 27s. 6d.; 5-16 in. to ¾ in., 25s., excepting 5 x 4 x ¾ in.; mild steel bar, 3½ d. lb.; drill, 6½ d. lb.; steel plates, 10ft. by 4ft. by 1-16th in., 32s.; ½ inch by 3-16 in., 30s.; ½ inch to 5-16 in., 28s. 6d.; ¾ inch, up to 27s. 6d.; 10ft. by 5ft. by 5-16 in., 34s.; ½ inch and 3-16 in., 31s. 6d.; ¾ inch to 5-16 in., 30s.; ¾ inch, up to 29s.; intermediate sizes up to 12ft. by 6ft. by 1-16 in., 35s. 6d.; ½ inch and 3-16 in., 32s. 6d.; ¾ inch and 5-16 in., 30s. 6d.; ¾ inch and up, 29s. 6d., all at per 100 lbs.; hexagon bolts, ¾ in. to 3 in., 8d. per lb.; over 3 in., 7d. lb.; ½ in. up to 2½ in., 50s.; 2½ in. to 6 in., 47s. 6d.; 6 in. and over, 45s.; ¾ in. up to 2½ in., 45s.; 2½ in. to 6 in., 42s. 6d.; 6 in. and up, 37s. 6d.; ¾ in., ¾ in., and 1 in. up to 2½ in., 40s.; 2½ in. to 6 in., 37s. 6d.; 6 in. and up, 32s. 6d. 100lb. Nuts, ¾ in., 9d. lb.; ½ in., 50s.; ¾ in. to 1½ in., 47s. 6d.; 1½ in. to 1¾ in., 52s. 6d. per 100 lbs.; 2 in., 7½ d. per lb.; washers, ¾ in. and under, 37s. 6d., and above that size, 32s. 6d. per 100lb.; shoes and dies, 32s. 6d. to 35s. per 100lb.; rails, £20 per ton; picks, 4 lbs., 27s. per doz.; shovels, 32s. 6d. to 50s. per doz.; hammers, drill, 7½ d. to 9d. lb.; hammer handles (best American), 14 in., 3s. 6d., 24 in., 5s. 6d., 30 in., 7s. 6d., 36 in., 10s. 6d. per doz.; metal, anti-

NEW AND UP-TO-DATE FOUNDRY will undertake to supply Castings of every description in Brass, Gun Metal, Phosphor Bronze, and Acid-resisting Metal. Duplicate Orders a speciality.

CENTRAL BRASS FOUNDRY,  
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Quotations on receipt of particulars.

JOHANNESBURG



friction, 1s. per lb.; galvanised iron, 24 gauge, 6 ft. to 10 ft., 10d., 11 ft. 10½d., 12 ft. 10¾d.; 26-gauge, 6 ft. to 10 ft., all lengths, 8½d. to 9½d. per ft. all-round; flat galv., 18 to 24 gauge, 32s. 6d.; 26 gauge, 34s. 6d. 100 lbs.; floor brads, 30s.; ceiling, 30s.; wire nails, 29s. to 32s. 6d. per 100 lbs.; solder, 50 per cent., 1s. 2d. per lb.; locks, rim, 45s.; mortice, 60s. doz.; barbed wire, 22s. 6d. to 25s. 100 lbs. coil.

Timber: Deals, Baltic, 9 x 3, up to 16 ft., 1s.; over, 1s. 1d. to 1s. 3d. (Oregon, 11½d.); flooring, 4½ x ¾ and 6 x ¾, 6½d. to 6½d. per sq. foot; do., 4½ x 1½, 7d.; and 6 x 1½, 7d.; Oregon edge grain, 6d. to 7½d.; ceilings, 6 x ½, 3½d. to 3½d. per sq. ft.; Oregon, 4 x ½, 4½d.; pitch pine, 7s. 6d. to 7s. 9d. per cub. ft.; Oregon, 5s. 6d. per cub. ft.; clear pine, 4in. x 12in., 7½d. per foot; 1in. x 12in., 8½d.; oak, small planks, 15s. per cub. ft.; do., large, 16s.; jarrah, 8s. 6d. per cub. foot; poplar, 1in. x 12in., 9½d.; scantling, 9 x 3, 1s. to 1s. 3d. per foot.

Bricks, cement, lime, etc.: Cement, nominal, 34s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 9d.; truck loads, 6s. 9d., slaked, do., 5s.; blue, 3s. 6d.; plaster lime, 4s.; bricks at kiln, stock, 36s. to 42s.; wire cuts, 40s. to 50s. pressed, 65s. per 1,000, road transport getting scarce; salt and white glazed bricks, £27 10s per 1,000; tiles, roofing, £17½ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6 ft. plain, 22s. 6d., fluted, 24s.; fireclay bricks, £9½, good average, per 1,000; clay chimney pots, 80s. per doz.; fireclay, 37s. 6d. ton on rail.

Oils, paints, lead, oxides, glass: Linseed, raw, 29s. 6d.; boiled, 29s. 6d. per 5-gall.; white lead, 70s to 72s 6d. per 100 lbs.; turpentine, 52s 2/4 galls.; 10/1, 57s.; coal tar, imported, 10s. to 12s. 6d. per 5 galls.; oxide in oil, 33s. 6d. to 37s. 6d. per 100 lbs.; dry oxide, 21s. to 22s. 6d.; S.A. crude oxide, 12s. 6d.; linseed oil putty, 4s. 6d. per 12½ lbs.; bladders, 35s. casks of 100lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 1s. per lb.; White Rose paraffin, 16s. 3d. 2/5; Laurel do., 16s.; petrol, 26s. 6d. 2/4; motor oil, 6s. to 7s. 9d. per gallon; engine lubricating oils, 19s. to 32s. per case; cylinder, 20s. to 35s.; paints in tins, 10d. to 1s. per lb., according to quantity, and if ordered to be mixed, 15 per cent. on pre-war rates. British plate-glass, 4in., 3s. 6d.; do., mirror, 4s. 6d.; window, 16oz., 1s. to 1s. 3d. foot.

Chemicals: Mercury, £18½ per 75 lb. bottle; bichromate potash, 2s. 6d. lb.; chlorate, 2s. 6d. lb.; permanganate, 9s. lb.; alum, 5d. lb.; carbolic acid, 7s. 6d. lb.; borax, 85s. 100lbs.; cyanide soda, 1s. 4d. lb.; hypo, 6d. lb.; acetate lead, 70s. 100lb.; litharge (assay), 75s. (commercial), 55s. 100lbs.; zinc sheets and blocks, 1s. 3d. lb.; plumbago crucibles, 5d. per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 16s. to 21s. wholesale, and 21s. to 27s. dozen, retail; carbon lamps, 7s. 6d. per dozen; pure rubber flex, 6d. to 8d. per yard; 3/20 coils of wire, 29s.; do., 3/22, 25s.; tubing, 12s. to 13s. 100 ft.; keyholders, 2s. 6d. each; round blocks, 3½ in., 4s. dozen; lamp holder cord grips, 15s. doz.; switches, 5 amp., 13s. to 14s. doz.; British glass shades, 24s. to 36s. doz.; Bohemian shades finished; porcelain shackles, 14s. 6d. doz.; do., bobbins, 16s. 6d. to 18s. 100; cleats, 18s. per 100; P.O. insulators, 18s.; motors, 3 h.p., about £28 to £35, new.

#### ELECTRICAL EQUIPMENT Co., 84, MARSHALL STREET (Off Simmonds Street).

Expert Winders of Motors, Dynamos and Coils of every description. Makers of all classes of spare parts. Turning. Electrical Plants installed. Maintenance Contracts entered into, covering cost of all breakdowns, at low rates.

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### Potash from Banana Stalks.

Consul Homer M. Byington, Leeds, England, writing to the United States Bureau of Foreign and Domestic Commerce, says that at a meeting of the Yorkshire section of the Society of Chemical Industry held in Leeds on March 27th, 1916, an interesting paper was read by Mr. R. H. Ellis, of Selly, in view of the stoppage of imports from Germany, this country is suffering from a shortage of potash supplies, and Mr. Ellis said that at the suggestion of Mr. E. E. Lawson, of Leeds, he made an examination of the banana stalk, with a view to the use of its fibre for pulp for paper making and possibly in other directions.

During the examination he noticed that the juice was sufficiently alkaline to cause irritant action on the skin, and this led him to examine it further, with the result that he found there was present a large percentage of potash and practically no soda. His analysis had been confirmed by Dr. A. J. Hanley, of the Agricultural Department of the Leeds University. In fact, the figures showed that the dried matter of the original stalk was as rich in potash as kainit. According to his analysis, a ton of banana stalks would yield 188 pounds of dried matter, containing 13.7 per cent. of potash, or 54 pounds of ash, containing 47.5 per cent. of potash or 25 pounds of pure potash.

"Considering that large quantities of banana stalks come into the country every week," added Mr. Ellis, "and that there is a great demand for potash and practically no supplies for agricultural purposes, the question of this refuse is worth the attention of municipal sanitary authorities. I am told that over 4,000 stalks come into Leeds every week. When stripped they have an average weight of four pounds each, or 16,000 pounds in all, representing 1,340 pounds (about 12 hundredweight) of dried matter as rich in potash as kainit."

### Two 35-Ton Locomotives Being Dismantled.

Makers—Dick Kerr & Co. and Stephenson & Co. Standard Gauge. Parts and Fittings will be sold cheap.

M. BROWN, Machinery Dealer,

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## THE REX CONSOLIDATED, LTD. TENDERS

Are invited for the purchase of the following: 241 Gold Mining Claims, held under Bezitrecht, on the Government Farm Waterval South No. 48, Sabie, District Lydenburg, together with Water-right, Concrete Dam on the Little Sabie River, Water Race, Pipes, Fluming, etc.; Ten Stamp Sandycroft Battery, 1,050lb. stamps, well-set plates, belts, Pelton Wheel, etc., in perfect working order; Complete Cyanide, Slimes and Assay Plants and Buildings; 20 Iron Treatment Tanks, from 10 to 100 ton capacity; 5 tons Tram Track; 23 Trucks; Gates' Ore Crusher and Bins; Quantity Points and Crossings and Turn Tables; One 12-h.p. Electric Motor, Transformers, etc.; Battery Spares; Carpenters' and Blacksmiths' Shops, well fitted; Spacious Offices, well furnished; Two Large Houses; Several Rondavels for employees; about 3,000 feet Piping, 1in. to 18in. diameter; Quantity Stores; Surveying Instruments; Plans and Drawing Instruments; Pumps, etc.; Stables and ample Store Rooms; Reduction Plant, worked by water power. The whole within one mile of railway station. Railway runs over the mine. The whole, the property of the Rex Consolidated, Ltd., well opened up with over 20,000 feet of drives, cross-cuts and shafts; upwards of 3,500 tons of ore, averaging 9 dwts. to the ton, ready for immediate stoping. An unusual opportunity for a syndicate or individual gold miners. Open to inspection at any time, provided reasonable notice is given. The above will be sold as a going concern or piecemeal. Tenders must be addressed to

HORACE TREMLETT.

Box 6, Sabie (to reach this address not later than July 31st, 1916).

The highest or any tender will not necessarily be accepted.

## The Week's Meetings.

### TRANSVAAL CONSOLIDATED LANDS

The annual meeting of the Transvaal Consolidated Land and Exploration Company, Ltd., was held on June 30th in the board-room, Corner House. There were present Messrs. H. C. Boyd (chairman), W. E. Lewis, F. H. Barry, G. Falck, A. G. Gill, J. J. Garrard, L. G. Heard, A. P. Richter, A. F. Mullins, Max Honnet, B. T. Bourke, J. Jeppe. There were represented 29,120 shares.

The Chairman said:—Gentlemen,—It is hardly surprising, considering the abnormal conditions which have prevailed, that the report before you can only record the sale of some 25,000 acres during the past year. It will be noted that in respect of these sales, which have mostly been on a basis of deferred payment of part of the price, we have only taken credit for the actual cash received. This year we have so far only sold five farms, and portions of farms, and leased 18. In the township of New Clare we have disposed of 112 stands against small monthly payments, and in other townships have sold 15 stands. The changes in investments are set forth in the directors' report, the general effect having been to increase the cash resources of the company to a very considerable extent. We have recently subscribed £35,000 of the new Union 5 per cent. Loan, which is free of income tax. In the items of general revenue there are no material changes.

Through the continuance of the policy of granting building loans the Braamfontein Company maintained appreciable sales, and till recently sales this year might be described as satisfactory. The recent site tax legislation, which will ultimately throw the entire burden of the municipal assessment rate on land, instead of land and buildings equally as heretofore, will impose a heavy additional burden on that company, and if no legislative change takes place the value of its land is bound to be seriously affected. It is to be hoped that when the public come to realise that the present legislation will almost certainly cause great depreciation in the value of their individual holdings, and consequently a general lowering of the municipal credit vis-a-vis the loan commitments of the town, they will take such action as will result in a return to the previous basis of assessment.

The Parkview golf course has been completed, and a club has been formed in connection therewith, which promises to have a successful future. Golfers unite in expressing great satisfaction with the course. It should certainly form a great attraction to the Braamfontein Company's estate.

#### Col. Madge.

It will be noticed that this year no land manager's report is presented, the deficiency being to some extent met by the fuller information given about agricultural and kindred matters in the directors' report. Shortly after the conclusion of the campaign in what was German South West Africa, during which he served on the Headquarters Staff in Pretoria, Colonel Madge, the company's land manager, proceeded to Europe, and, I deeply regret to have to record, was killed in the trenches in France early last month. Colonel Madge had administered his part of the company's affairs with great ability during the 12 years

he was with us and his loss is much felt by the board and all who came in contact with him in his work. To his more intimate relationships I do not refer here, except to record our deep sympathy with those nearest to him.

#### Cattle Ranching.

While the crops were last year on the whole below the average owing to adverse natural conditions, most of the small herds of cattle showed most satisfactory natural increase. Now that the danger of disease can be so much reduced if dipping and inoculation of stock are properly carried out and farms are securely fenced the company contemplates stocking some of its land in the Northern Transvaal on a fairly extensive scale; the several compact blocks of farms owned there will shortly be thoroughly examined and if found to be as suitable for this purpose as they are believed to be steps will be taken gradually to place suitable cattle on a selected area. We shall proceed with caution, but in view of the present position of the meat supply of the world it is felt that judicious outlay in this direction should ensure satisfactory returns. Demonstration of the possibilities from a cattle ranching point of view of the district in question in which the company has large holdings must also materially assist in its development as a whole. Before committing ourselves, however, we should like to be satisfied that the authorities will efficiently and without favour enforce the excellent existing regulations for the prevention of disease. Recently we saw that in the Union Parliament there was serious criticism of the conduct of scab inspectors in the Cape Colony, and nearer home there is similar cause for complaint. Early in April East Coast fever broke out on a farm within 20 miles of Pietersburg. Although the authorities should have been early aware of the outbreak on the farm, it was not placed in quarantine till the end of April and cattle from it were in the interval sold in Pietersburg, moved about the country, and otherwise allowed to come in contact with other stock. Just how much loss to the public may have resulted from this one case it is impossible to say. Representations in the matter have been made to the Agricultural Department by the Land Owners' Association and others. It is realised that owing to the war the police force is greatly reduced in outlying districts, but this sort of thing can clearly be put a stop to if the more responsible officials will act with promptness and firmness.

#### Native Land Act.

The report of the Native Land Act (1913) Commission has been published, and if its recommendations become law over five million acres in the Transvaal, in addition to the more than one million acres in the present native reserves of this Province, will be set aside as native areas, outside of which natives will not be allowed to purchase or lease land, while Europeans may not purchase or lease within them, except with special permission from Government. Under the proposal any European already owning land included in these areas who wishes to sell it can, in the first instance, only sell to natives; failing this, Government must either expropriate or grant permission to sell to Europeans. As Europeans however, are not likely to wish to purchase land

within these areas or Government to expropriate it, it is clear that in effect such land can only be sold to natives and its value is likely to depreciate for the time being as the natives cannot possibly buy all at their disposal within any reasonable period. On the other hand, the fact that so much land is removed from possible European settlement is likely to have a favourable effect on the value of that outside the reserves. Included in the land proposed to be so set aside are 105 of this company's farms, and as indicated the value of these as a whole is likely to suffer somewhat; but on balance it does not appear that this company's interests are likely to be greatly affected one way or the other, and it will be a matter of considerable satisfaction if this vexed question of native tenure of land can be finally settled.

#### Mineral Propositions.

The consulting engineer's report deals fully with the past year's work in connection with the various mineral propositions in which the company is interested, and I shall only refer to those in regard to which there is something fresh to report.

We have to record a material loss at Groenfontein for the past year, and the value of the plant has been written down to what appears to be a realisable value. I am glad to say that during the last five months we have made small but consistent profits totalling about £2,000; and there appears to be reason to believe that somewhat similar profits will continue for some time to come, during which discoveries of importance are always possible. Mr. Garrard's remarks in his report on the occurrence of the tin deposits will doubtless be read with interest. Although further tests of the valley alluvial ground indicate the existence of an appreciable area of fairly high value it has been decided not to proceed with its treatment till more normal times return. It has been found that the necessary expenditure on plant would be considerably greater than at first anticipated, and suitable men are difficult to get at present for such work. There are so many unknown factors in this sort of proposition till operations are well under way that it is well to wait until all conditions are more favourable.

The Zaaipplaats Lease has been disposed of to the Zaaipplaats Tin Mining Company. We thereby recovered all our cash outlay and received 7,500 Zaaipplaats shares for our half-interest in the lease; some 4,800 of these have been sold. While the property certainly has considerable possibilities, these could only be realised by expenditure on a scale which we were not warranted in undertaking considering the absence of water supply and other disadvantages. The Zaaipplaats Company, however, having the necessary facilities, is in a much more favourable position to exploit this ground successfully.

For a small proposition Mutue Fides has given highly satisfactory results this year, and has yielded between 1st January and the end of May 217 long tons of tin concentrates with an estimated profit of about £14,000. Owing to want of water, as we have only surface supplies, crushing ceased at the middle of this month, and the plant is now being thoroughly cleaned up. During the present dry months prospecting and development will be actively carried on, as indications of the continuance of values are satis-



factory, and we may safely count on having materially increased our reserves by November, when, if the rainy season is normal, we should resume treatment. It must be realised, however, that there is nothing as yet to lead us to count on the opening up of a mine there of any considerable size.

The appreciable expenditure on Dientje yielded nothing of a nature to encourage the continuance of work, which has accordingly been finally stopped. Following proclamation of the farm, it was recently thrown open to panning, but only 80 claims were pegged by the public. Experiments to obtain a satisfactory separation of the molybdenite and copper concentrates from the ore from Rietfontein 3 and 1638 are still proceeding, but so far without success.

During the current year varying monthly results have been obtained at Fairview, the net profit for the first five months being only £629. Costs have, however, had to cover heavy development charges, which have increased the ore reserves by 11,000 tons to about 35,000 tons of 22 dwys per ton, which is satisfactory for a small mine, but the ore is becoming more difficult to treat as the workings get deeper and alterations to plant may be necessary to ensure successful treatment.

As the report states, the Rietfontein (T.C.L.), Limited, went into voluntary liquidation in December, as with the unsatisfactory recovery and depleted ore reserves it was impossible to make profits. The property was offered for sale at public auction, and the company bought it in to cover the bond. I may mention that outside shareholders were informed that they could retain their interest in the property if they, equally with the company, would assume their proportionate share of the current liabilities. This offer was accepted by some. Further metallurgical experiments on the ore on a working basis point to the fact that a satisfactory recovery can now be secured, but the necessary expenditure on plant would only be justified by the existence of considerable ore reserves. Careful consideration is necessary before we decide to risk any more on this property.

Further information about the Marico Zinc Mine has led us to form an even more unsatisfactory opinion of it than that which I expressed last year, and consequently we have, as a preliminary measure, made provision for writing off almost the entire expenditure on it. Certain developments now proceeding in regard to a method of precipitating zinc direct from the ore may enable us in time to recover an appreciable part of this expenditure.

The Swaziland Tin, Limited, has continued to do well, and has, according to the statements published in the Press, obtained an average monthly profit of some £2,200 during this year. Having had a 40 per cent. interest in the Zaaipplaats Lease, the financial position of the company has also benefited through the sale to the Zaaipplaats Tin Mining Company already referred to. A dividend of 15 per cent. has just been declared for the current half-year.

In view of the greater interest now manifested in the far East Rand, the possibilities of Holfontein No. 179, Boksburg, have again been considered. As it is clear that further reliable information regarding the property could only be gained by shaft sinking and considerable development, the cost of which is greater than can at present be considered, it appears wiser to await further possible information about the district. Ten of the company's staff are on active service in Europe or Africa, and the additional burden of work thrown on those who remain has been cheerfully shouldered. To all of them our thanks are due for their continued good services. I now beg to move that the directors' report and the accounts for the year ended December 31, 1915, be received and adopted.

The motion was adopted. The retiring directors were re-elected and the auditors reappointed.

## SAKALAVA OILS.

Mr Leslie A. Stewart presided over a large attendance of shareholders of the Sakalava Madagascari Proprietary Oil Fields, Ltd., at the annual meeting of the company in the board-room of the Consolidated Buildings on Saturday.

Referring to the resignation of Dr. F. S. Lister from the directorate, the Chairman said Dr. Lister had written to state that his resignation was prompted only by the urgency of his professional duties. The secretary (Mr. C. W. Herold) read a letter of resignation from Mr. Geo. D. Alexander, who stated that he resigned because he did not approve of the manner in which the affairs of the company had been managed in the past, which had resulted in a large expenditure in unprofitable directions—(hear, hear)—and also the absence of any definite policy. He believed that those responsible acted in what they believed to be the best interests of the company, but serious mistakes had been made, and the confidence of shareholders had seriously been shaken. The feeling was abroad that the house must be put in order. The secretary also read a letter of resignation from Mr. C. Hosking "because of the dissatisfaction among the shareholders."

Speaking directly from the report, the Chairman described a visit to the property in Madagascar made by himself and Mr. H. J. Taylor. It was found, he said, that there were certain influences inimically affecting the progress of operations, and these were righted. The property was now registered in the name of Mr. Taylor, and Mr. G. M. Robinson was in charge of the drilling operations and the general affairs of the company on the spot. The Chairman said that will talk availed nothing, but common-sense criticism would be welcomed. Although it was only four months since the new issue was allotted, there had already been placed some £3,000 on fixed deposit, but the present running costs in Madagascar were under £250 a month, with the prospect of a greatly increased rate of drilling. He claimed that he and Mr. Taylor had effected a saving of £2,500 a year in the working costs.

Mr. J. H. Catherall seconded the adoption of the report.

Mr. G. D. Alexander moved as an amendment that the directors' report be received, but not adopted. He wanted to have discussion. Why, he asked, was Mr. Skerthchy engaged, when they had paid a thousand guineas to M. Levat to select sites? Nine days' inspection by the latter gentleman was more useful than nine years' inspection by people who knew nothing about oil. (Hear, hear.) The company had done nothing but drift, and there had been no policy. They had neglected the advice of a highly-qualified engineer and adopted a method which was equivalent to tossing a penny in the air, and where it fell, boring a hole. The company had employed unsuitable and incompetent persons, while two years' valuable time had been lost. If oil were struck in No. 4 well to-morrow, all he (the speaker) could say was that the company had the devil's own luck. (Laughter.) The property was untried and the results were negligible. He believed they had a good property, but they had made blunder after blunder, and the shares had dropped from 60s. to 6s.

Mr. English seconded.

Other shareholders spoke, and the Chairman replied to criticism, after

which Mr. Alexander withdrew his amendment and the report was adopted.

On the motion of the directors, Mr. J. M. John moved the adoption of the following—Messrs. W. W. Groves, Charles Hosking, I. H. L. Manley, W. H. Duffy, Geo. D. Alexander, D. A. English, and A. J. McGroon. Of these Messrs. Alexander and Hosking were on the old board. Mr. F. Roberts was elected auditor, vice Mr. C. E. Nelson.

A vote of thanks to the retiring directors was carried.

## THE NEW JAGERSFONTEIN MINING AND EXPLORATION CO., LTD.

### ANNUAL MEETING.

The 28th ordinary general meeting of shareholders in the New Jagersfontein Mining and Exploration Company, Ltd., was held on June 30th at the company's office, Stockdale Street, Kimberley. There were present: Colonel Sir David Harris, K.C.M.G., V.D., M.L.A., and qq. S. B. Joel, Jack Joel and Lieut.-Col. H. S. Harris, Mr. F. Hirschhorn (and qq. L. Breitmeyer), Mr. B. Horkheimer (and qq. W. Mosenthal and E. Bernheim), Mr. D. J. Haarhoff, Mr. J. J. Oughlan, Mr. E. Oppenheimer, Mr. E. W. Weatherby, Mr. A. W. Westcott, Mr. J. J. T. King (qq. estate late W. H. Beldy), Mr. T. Bowden (qq. E. C. Lardner Burke), Mr. K. C. Elliott, Mr. H. Rose Innes, Mr. C. W. Lawrence, and the secretary (Mr. W. H. Solomon).

The secretary read the notice convening the meeting, and at the request of the chairman also read the report of the directors.

On the motion of Mr. Colin Lawrence, the statements of account and the report of the general manager were taken as read. The report of the directors, statements of account, and the general manager's report will be found elsewhere in this issue.

### THE CHAIRMAN'S SPEECH.

Sir David Harris then rose to move the adoption of the annual report and the financial statement. He said: Gentlemen,—I have nothing of a sensational character to announce to-day. The shaft, tunnels and underground workings of the mine are in excellent condition, and are being carefully and continually supervised. Pumping operations have been carried on daily since hauling was stopped about two years ago, so that the work of hauling could be restarted whenever considered advisable. This has entailed a certain amount of expense, but it is money well spent, because, once you allow your mine to get into disrepair, the cost of putting it into working order again would be considerably heavier than the actual cost of maintenance, to say nothing of the delay that would occur ere mining operations could be resumed.

### ACCOUNTS.

The capital account exhibits no new features. The reserve fund is the same as last year, viz., £175,000. The item sundry creditors has been reduced by £42,399 15s. 6d., and stands at £136,146 2s. 5d., as against £178,815 17s. 11d. last year. On the asset side of the balance sheet, claims, property and permanent works are taken into the account at the same value as last year. This is also the case as regards investments, consisting of Jagersfontein Mine and Estate Company shares. There is a slight decrease of £3,749 8s. 9d. in stores, and the stock of blue has decreased by 325,366 loads.

which, at 1s. 6d. per load, represents £24,402 9s.

Turning to the profit and loss account, there is only one item to explain—a decrease of £1,274 5s. 2d. interest on investments, which is accounted for by the sale of Consols and Russian Loan. Shareholders will remember that I referred to that at the last annual meeting.

#### WORK AT THE MINE.

As the work at the mine during the financial years ending March 31st, 1915 and 1916, was very irregular and spasmodic, I am not able to compare operations, including working cost, yield of diamonds and quantity of ground hauled and washed, as I was in the habit of doing in pre-war years. I hope, however, the day is not far distant when I will again be in a position to review in detail a whole year's work in comparison with a previous twelve months' operations. (Hear, hear.) As diamonds are a distinct and undoubted luxury, susceptible more than any other commodity to the world's financial and political conditions, this company, like other concerns producing these gems, has suffered severely since the commencement of this terrible war. This will be apparent when I tell you that during the last 23 months our total sales amounted to £179,900; that we did not sell a carat until the end of May, 1915, ten months after the outbreak of hostilities; and that an interval of a whole year elapsed before we disposed of a second parcel of diamonds. During the three years preceding the war we sold diamonds amounting in the aggregate to £3,538,076, an average of £1,179,359 per annum, as against £89,950 per annum since July 4th, 1914. This will give you an idea of how terribly the war has affected the diamond industry, and this company especially. You can imagine that the directors have passed through a most trying and anxious time. The financial facilities afforded by the National Bank, and the large advances made by Messrs. Barnato Bros., enabled us to tide over our difficulties and to assist the families of our employees for whom we could find no work, and the gallant men who went on active service, many of whom, alas, have lost their lives for King and country.

#### CONDITION OF DIAMOND MARKET.

For nearly a year after the declaration of war there was no real demand for diamonds, and the only goods placed on the market were those found on the alluvial diggings, which normally represented about 10 per cent. of the total production of the Union. This output was reduced to half during the period I have just mentioned. The diggers, the majority of whom live from hand to mouth, were compelled to sell their finds, with the result that they only received 50 per cent. of the price ruling in 1913. Even this small quantity of diamonds forced on an unwilling market brought down values by 50 per cent. This proves how sensitive is the market for diamonds, and the necessity for regulating the output to the world's demand. (Hear, hear.) If the three most important producing companies had forced the sale of their diamonds there would have been a panic, prices would have crumbled away, without any important sales being effected, the confidence of the trade would have been destroyed, and diamonds to-day would be as low as they were in 1877-78, and the mines rendered unprofitable. The policy of the three large producers to stop production, and the action of the Diamond Syndicate in not offering any of its large stock, saved the situation, with the result that prices for the better qualities are as high to-day as in 1913, when they reached low-water mark, despite the fact that the world is only purchasing about half the quantity it took three years back. (Hear, hear.)

#### POLICY OF LIMITED PRODUCTION.

The only important market to-day is America, and the production of this company and other large concerns will be limited to the quantity that can be absorbed by the diminished demand. We will feed but never glut the market. (Applause.) By adopting this policy we can maintain prices, prolong the life of our mines, preserve to the State a valuable asset, and conserve the interest of shareholders who have ventured tens of millions sterling in the industry. Very many persons hold the mistaken idea that the price of diamonds can be raised at will. I have yet to learn that producers can fix the price of their products and obtain a ready response from their purchasers. The price of diamonds, like every other commodity, is regulated by supply and demand. Many legislators are obsessed with the idea that the value of diamonds can be increased by Acts of Parliament. I wish they had tried the experiment with ostrich feathers, or some other product of the Union; they would soon have been disillusioned. Diamonds are subject to the same economic laws as every other commodity, possibly so in a more marked degree, for they are a pure article of luxury, indestructible and inconsumable. Nature's economic laws have not, to my knowledge, yet differentiated between diamonds and carrots and turnips.

#### EXPORT TAX ON DIAMONDS.

During the session of Parliament just closed a Bill, craftily drafted, was passed which imposed a 5 per cent. export tax on rough diamonds, a tax which will fall exclusively on the high-grade mines. If you will bear with me for a few minutes I will try to explain how this will operate. Companies producing diamonds on which there is a profit of 35 per cent. or less will not be liable to the duty, but when the profit exceeds 35 per cent. an export duty of  $\frac{1}{2}$  per cent. will have to be paid on every additional  $\frac{1}{2}$  per cent. of profit. When the profit amounts to 42 $\frac{1}{2}$  per cent. an export tax of 5 per cent. (which is the maximum) will be levied. For the purpose of calculating the export tax for the current year, under the provisions of the Act the average profit made during the three accounting years of the different companies preceding the 4th August, 1914, will be based on the Mining Profits Tax Act; that being so, this company will not have to pay any diamond export tax for the current year, as our profits during the three years I have mentioned only reached an average of 32.94 per cent. I did my best to prevent this Bill becoming law—(hear, hear)—as I am strongly opposed on principle to an export tax on raw products, which form of taxation, in my opinion, must ultimately react detrimentally on the State adopting that unwise policy. But I failed, owing to the lack of support, as a large majority of the members were in favour of the tax. I, however, succeeded in carrying an amendment to Clause IV. of the Bill, thanks to the support of Sir Abe Bailey, Sir Percy Fitzpatrick, Messrs. Feetham, Jagger, Merriman, Oliver and Orr, Sir Thomas Smartt, Messrs. Vincent, Wessels, and Dr. Watkins. If my amendment had not been carried, companies could not have debited their profit and loss accounts with the amount actually paid for export duty, and would have been compelled to pay the 10 per cent. mining profits tax on the gross proceeds of the diamonds, not being allowed to deduct the amount paid for export tax. A more iniquitous or vindictive proposal has seldom been submitted to any Parliament. (Hear, hear.)

#### POSITION OF COMPANY.

I take it that the present financial position and prospects of the company are of more interest to you than any other subject I can bring forward to-day,

so I will let you know in a few words how matters stand in this respect. Calculating at current rates, the diamonds on hand to-day—and which we have good reason to believe we can readily sell—we will be able to pay off all our debts and have a credit balance of about £40,000. (Applause.) We intend erecting a new direct treatment plant, which, together with power station, will cost approximately £300,000. This we anticipate will decrease working costs by at least 6d. per load of 16 cubic feet of diamoniferous soil, which will more than compensate for the additional cost of mining and hauling, consequent on the increased depth of the working levels. On our floors there is at present ground that we estimate will yield diamonds to the value of £1,100,000, against which must be debited, say, £300,000 for cost of washing. Taking also into account the £300,000 to be expended on the new plant, there will be a surplus of half-a-million sterling when the ground is finished, which should be available for distribution among the long-suffering shareholders—(applause)—who have not received a dividend for over two years, and who are patiently waiting for some return on the large amount of money put into the Jagersfontein Mine.

#### STAFF.

It has been my pleasing duty on many previous occasions to pay a well-deserved compliment to the faithful, devoted and capable service rendered by Mr. Brigham, general manager, and his staff; our secretary, Mr. Solomon, and assistant; and the clerical staff at the mine. I can to-day confidently repeat the compliment, for they have loyally stood by the company, receiving only half-pay for 16 months, and three-quarter pay since the 1st January last. But my colleagues and I, with the greatest pleasure, have decided to place them all on full pay from and after to-morrow, the 1st of July. (Applause.) Although we anticipate that there will be a restricted sale of diamonds until the world has recovered from the ravages of war, we feel it to be our duty to restore their normal salaries, considering the responsibilities and talents of those whom I have referred to, and also having regard to the increased cost of living.

I now have much pleasure in moving the adoption of the report, the balance sheet, and profit and loss account. (Applause.)

The resolution was seconded by Mr. D. J. Haarhoff, who said: I have much pleasure in seconding the adoption of the report and balance sheet. I trust the shareholders will realise the difficulties through which we have had to steer the company in these troublous times.

No shareholder having any remarks to make, or questions to ask, the resolution was put to the meeting and carried unanimously.

#### ELECTION OF DIRECTORS.

The Chairman said the next business was the election of directors. As there were no fresh nominations, according to the Articles of Association the retiring directors were ipso facto re-elected.

#### AUDITORS.

Mr. J. J. T. King then moved that Messrs. Howard Pim and Hardy and Messrs. Salisbury and Beaton be re-appointed auditors to the company, their remuneration to be fixed by the Board of Directors.

Mr. H. Rose-Innes seconded, and the resolution was unanimously agreed to.

The Chairman said that this concluded the business, and he thanked those present for their attendance.

A vote of thanks to Sir David Harris for presiding, and for his able speech, was accorded on the motion of Mr. K. C. Elliott, and this concluded the proceedings.



**Rhodesia Chamber of Mines Monthly Report.**

The report of the executive committee of the Rhodesia Chamber of Mines for the month of May, 1916, is as follows:—Finance.—Receipts during the month amounted to £9 4s. 9d., and payments to £106 0s. 1d. The balance to credit of Current Account on 31st May was £12 19s. 1d., while £1,900 remained on Fixed Deposit. Native Labour.—The following is a summary of the Returns of Native Labourers employed on Southern Rhodesian Mines during the months of March and April, 1916:—Local, 12,229 and 13,180; Portuguese Territory, 8,171 and 8,128; Northern Rhodesia, 7,673 and 7,269; Nyasaland, 10,602 and 11,267; other sources, 2,065 and 1,511; total, March, 41,040, and April, 41,685. The number employed in April shows an increase of 5,056 as compared with April, 1915. Death of Lord Kitchener.—On the occasion of the lamented death of Lord Kitchener, the following telegrams passed between His Excellency the High Commissioner and the Chamber:—From Chamber, to His Excellency: "Members desire to express their deepest regret and sympathy at the great loss suffered by the tragic death of Secretary for War, whose unique services to the Nation and to South Africa in particular will never be forgotten." From Imperial Secretary, to the Chamber: "His Excellency the High Commissioner desires me to thank you sincerely for your sympathetic message with reference to the death of Lord Kitchener." Railway Rates on Ore.—In reply to the committee's representations, the General Manager of Railways has specified a special rate of 26s. 9d. per ton for magnesite, from Gwanda to Johannesburg. The question of rail rate on ores is still under consideration, with a view to further representations to the Railway Companies. Declarations under Mining Law.—The Secretary for Mines has forwarded certain suggestions, which are approved by your Committee, for the amendment of the Mining Law with the object of facilitating the making of declarations of footage, gold, and other returns re-

quired. Under the new arrangements, if same are introduced, appearance before a Justice of the Peace for the purpose of making these declarations will not in all cases be necessary. Amongst other matters which have engaged the attention of the committee during the month are: Mining Congress; Unification of Chambers of Mines, etc.

**Qualitative Test for Molybdenum.**

In view of the rapidly increasing demand for molybdenum ores, the Colorado School of Mines, at Golden, U.S.A., is continually receiving requests from prospectors and miners for a reliable test for molybdenum. In response to such requests (says the "Mining and Scientific Press"), the following test is suggested: Pick out carefully the supposed molybdenum mineral, grind fine, and take a quantity equal to a pea in size and put it in a glass test tube with a speck of paper 1/32 of an inch square. Add three drops of water and five drops of concentrated sulphuric acid, and boil slowly. If molybdenum is present the solution will change to a dirty green colour when almost dry, and on cooling will turn a beautiful ultramarine blue. This colour changes immediately on the addition of a few drops of water to a dirty gray. Care must be taken to take the pure molybdenum mineral, to boil the exact quantities specified, and to boil slowly. Tests in the laboratories of the School of Mines prove that this method gives splendid results with all molybdenum minerals.

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# THE NEW JAGERSFONTEIN MINING AND EXPLORATION COMPANY, LIMITED.

## REPORT OF THE DIRECTORS

FOR THE

**Year Ending 31st March, 1916**

To the Shareholders of

THE NEW JAGERSFONTEIN MINING AND EXPLORATION  
COMPANY, LIMITED.

Gentlemen,—Your Directors beg to submit their Twenty-eighth Annual Report, together with the Balance Sheet at 31st March, 1916, and Profit and Loss Account for the year ended 31st March, 1916.

During the year, as shown in the Accounts, the Revenue from Diamonds sold, less the Decrease in Stocks at cost, amounted to ... .. £75,101 1 7

Dividends from Investments and Revenue from other  
sources ... .. 5,366 5 8

Giving a total revenue of ... .. £80,467 7 3

The Expenditure for the year is as follows :—

Mine and Floor Expenses ... .. £56,159 0 6  
War Expenditure ... .. 7,216 4 0  
General Charges, Directors' Remunera-  
tion, and French Transfer Duty  
and Income Tax ... .. 23,102 8 9  
86,477 13 3

Balance being loss for the year carried down ... .. £6,010 6 0

The Balance Unappropriated last year was ... .. £13,697 5 4

Diamonds Unsold 31st March, 1915, transferred from

Suspense Profit Account ... .. 74,077 6 3

£87,774 11 7

This Balance has been appropriated as follows :—

Loss for the year carried down ... .. £6,010 6 0

Suspense Profit Account—

Diamonds Unsold 31st March, 1916 ... .. 55,298 16 3

Balance Unappropriated carried forward ... .. 26,465 9 4

£87,774 11 7

At the last Annual Meeting your Directors reported that owing to the outbreak of war the Company was forced to suspend all operations early in August, 1914.

Your Directors, however, are pleased to report that in consequence of the recent revival of the American Diamond Market the Company decided to resume washing operations from the 1st January last, on a scale commensurate with the demand.

A Report from the General Manager dealing with the operations of the Company is submitted to this Meeting.

In conclusion, your Directors beg to express their appreciation of the services rendered by the General Manager and the Staff.

In terms of the Articles of Association of the Company, all the Directors retire, but are eligible for re-election.

You will have to appoint Auditors and fix their remuneration.

D. HARRIS,

F. HIRSCHHORN,

J. J. COGHILAN,

D. J. HAARHOFF,

B. HORKHEIMER,

E. OPPENHEIMER.

Directors.

Kimberley.

27th June, 1916.



The New Jagersfontein Mining and Exploration Company, Limited.—continued.

## GENERAL MANAGER'S REPORT.

Jagersfontein,  
15th June, 1916.

To the Chairman and Directors of

THE NEW JAGERSFONTEIN MINING AND EXPLORATION  
COMPANY, LIMITED, KIMBERLEY.

Gentlemen,—The following is a report of the operations of this  
Company for the year ended 31st March, 1916 :—

### MINING.

Under this caption, work has been restricted to pumping and  
the maintenance in good order of all machinery and such tunnels  
as are essential to the immediate resumption of the normal output.

151,390,200 gallons of water have been raised during the year,  
equal to 17,282 gallons per hour.

### WASHING.

During the last two months of 1915 a small force of workmen  
was engaged in effecting repairs to a suitable number of Washing  
Machines, to treat approximately 100,000 loads per month, working  
day shift only. Work actually started on January 3rd, 1916. The  
results are detailed below :—

	Hopperings		Stone	
	Loaded.	to floors.	Rejected.	Washed.
Ordinary Machines				
(5, 6, 7, 8 and 9) ...	230,351	66,429	—	163,925
Crushing Machines				
(10 and 12) ... ..	95,012	—	2,801	92,211
	325,366	66,429	2,801	256,136

	Blue.		Hopperings.
Stocks, 1st April, 1915 ...	2,328,925		1,123,008
Deduct as above	325,366	Add as above	66,429
April 1st, 1916...	2,003,559		1,189,437

Approximate estimates of Hard Blue, which in the past has  
been rejected by the Mining and Washing processes, indicate that  
we have, in addition to the above, something in excess of 1,500,000  
loads, which should yield 7.5 carats per 100 loads.

### LABOUR AND COMPOUNDS

During the last week of the fiscal year we employed 113  
Europeans, including the Staff, and 756 Natives. The latter are  
housed in the New Mine Compound, are plentiful, and of a highly  
satisfactory type.

### WATER AND RESERVOIRS.

During the year all reservoirs have been and are full.

### RELIEF.

As many Europeans as possible were employed previous to the  
resumption of washing operations on maintenance work and the  
care of livestock. The number averaged 54, and were assisted by  
19 natives. Rations on the scale as noted in our last report were  
continued, and an arrangement made with the Provincial Adminis-  
tration to employ a number of men on road-making, in connection  
with which we supplied all materials and plant free, the Adminis-  
tration paying part of wages in cash, which we supplemented with  
food. This continued until February 1st, from which date we  
abandoned rationing and substituted a cash addition to the Govern-  
ment pay to bring it up to their regular daily rate for such work.  
We have agreed to continue this until June 30th.

All worthy applications for help to seek work elsewhere have  
had our attention. Pecuniary assistance has been given to 83  
families.

In conclusion, I desire to bear testimony to the loyal assist-  
ance the Company has received from our Staff and employees, and  
to thank the Board of Directors for their continued support.

Yours faithfully,

A. F. BRIGHAM,

General Manager.

The New Jagersfontein Mining and Exploration Company, Limited.—continued.

**BALANCE SHEET, 31st MARCH, 1916.**

LIABILITIES.		ASSETS.	
To Capital Account—		By Claim Property .....	£604,246 3 9
Authorised, 1,000,000 Shares of		Permanent Works—	
£1 .....	£1,000,000 0 0	Rock Shaft and Equipment ...	£170,000 0 0
Issued, 850,000 Shares of £1 ...	£850,000 0 0	Waterworks .....	21,310 15 11
Note re Conversion of Capital—		Buildings, Jagersfontein ...	69,887 12 10
130 Preference and 168 De-		Railway Siding .....	1,803 2 1
ferred Shares remain un-			263,001 10 10
converted.		Machinery and Plant—	
Special Reserve Fund .....	175,000 0 0	Machinery .....	1 0 0
Sundry Creditors .....	136,446 2 5	Livestock .....	6,667 0 0
Unclaimed Dividends .....	2,869 16 8	Wagons, Carts and Harness ...	670 0 0
Suspense Profit Account—			7,338 0 0
Diamonds per contra unsold at date	55,298 16 3	Property—	
Profit and Loss Account—		Farm Property .....	20,000 0 0
Balance .....	26,465 9 4	Office Premises .....	500 0 0
			20,800 0 0
		Investments—	
		Jagersfontein Mine and Estate	
		Company's Shares .....	98,293 0 0
		Furniture .....	1,466 15 2
		Stores .....	43,516 18 1
		Blue Ground Stock, 2,003,559 loads	
		at 1s. 6d. per load .....	150,266 18 6
		Diamond Stock—	
		At cost of production .....	55,298 16 3
		Sundry Debtors .....	1,304 4 9
		Cash at Bankers and in Hand ...	547 17 4
			£1,246,080 4 8
	£1,246,080 4 8		

**PROFIT AND LOSS ACCOUNT for the Year ending 31st March, 1916.**

Dr.		Cr.	
To Mine Expenses .....	£7,205 0 10	By Diamond Account .....	£75,101 1 7
Floor Expenses .....	24,551 10 8	Transfer Fees .....	30 4 6
	£31,756 11 6	Dividends on Investments .....	4,925 0 0
Add Blue Ground on		Sundry Receipts .....	411 1 2
Floors, March 31,		Balance carried down .....	6,010 6 0
1915, 2,328,925			
loads at 1s. 6d....£171,669 7 6			
Less Blue Ground			
on Floors, March			
31, 1916, 2,003,559			
loads at 1s. 6d.... 150,266 18 6			
	24,402 9 0		
	£56,159 0 6		
General Charges—			
Claim Licences, Rates, Rents, etc.	8,040 11 6		
Donations, Charities and Hospital			
Expenses .....	339 9 5		
Charges, Stationery, Cables, Insur-			
ance, Travelling Expenses, Ex-			
change and Interest, and			
Sundries .....	6,858 18 8		
London Agency .....	945 5 6		
Salaries .....	2,713 10 4		
Auditors' Fees .....	131 5 0		
Directors' Remuneration .....	2,500 0 0		
	21,523 0 5		
War Expenses .....	7,216 4 0		
French Transfer Duty and In-			
come Tax .....	1,579 8 4		
	£86,477 13 3		
			£86,477 13 3
To Balance brought down...	£6,010 6 0	By Balance Unappropriated March 31,	
Suspense Profit Account .....	55,298 16 3	1915 .....	£13,697 5 4
Diamonds unsold at date at cost.		Suspense Profit Account .....	74,077 6 3
Balance carried to Balance Sheet...	26,465 9 4	Diamonds unsold 31st March, 1915,	
	£87,774 11 7	now written back.	
			£87,774 11 7

We have examined the above Balance Sheet and Profit and Loss Account with the Books, Accounts and Vouchers relating thereto, and with the Audited Accounts of the London Agency, and certify the same to be correct.

WM. H. SOLOMON, Secretary.

HOWARD PIM & HARDY,  
Registered Public Accountants.

SALISBURY & BEATON,  
Assoc. Certified Accountants (Cape),  
Auditors.

Kimberley, 19th June, 1916.



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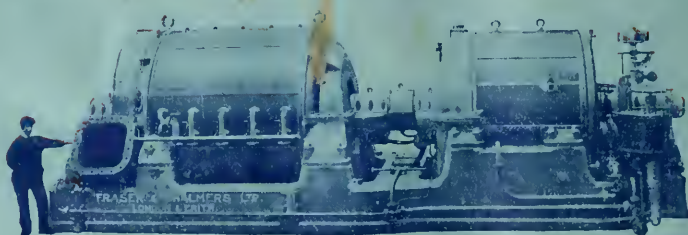
JOHANNESBURG, TRANSVAAL, SATURDAY, JULY 8, 1916.

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